

## Pantheon Report

Generated at 2017-09-19 09:13:44 (UTC).

Data path: GCE Iowa Ethernet (*local*) → GCE Tokyo Ethernet (*remote*).

Repeated the test of 10 congestion control schemes 10 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

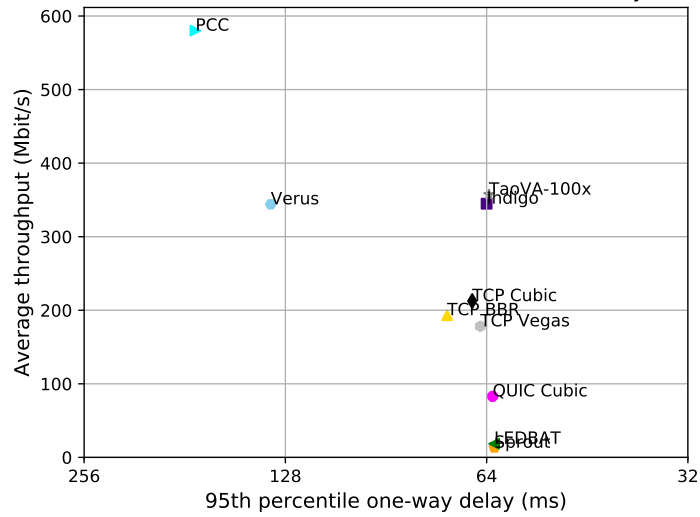
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo\_fast**).

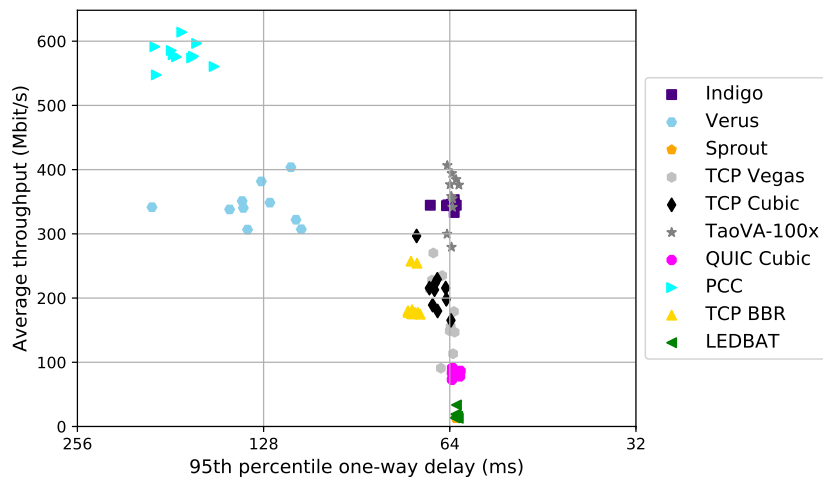
Git summary:

```
branch: master @ 57453dc11f8da93a2e03eea75289fea01b816298
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

test from GCE Iowa Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme  
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE Iowa Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme  
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	10	93.94	98.56	102.52	72.26	73.83	75.70	0.01	0.05	0.05
TCP Cubic	10	113.66	103.82	89.74	66.57	67.64	66.63	0.00	0.01	0.02
Indigo	10	180.93	171.82	153.71	63.17	64.46	65.20	0.00	0.00	0.00
LEDBAT	6	9.22	10.78	5.81	482.18	62.40	62.52	0.03	0.02	0.01
PCC	10	537.37	50.12	24.95	174.38	174.48	155.53	0.99	0.82	0.98
QUIC Cubic	10	49.03	38.43	25.67	62.10	61.99	62.29	0.00	0.00	0.01
Sprout	10	6.61	6.58	6.36	62.52	62.45	62.39	0.05	0.02	0.03
TaoVA-100x	10	185.35	195.08	165.21	63.38	63.01	65.36	0.02	0.00	0.00
TCP Vegas	10	77.36	110.61	82.06	64.48	65.57	65.86	0.00	0.00	0.00
Verus	10	210.62	158.32	89.26	130.56	141.35	136.49	0.50	0.55	2.98

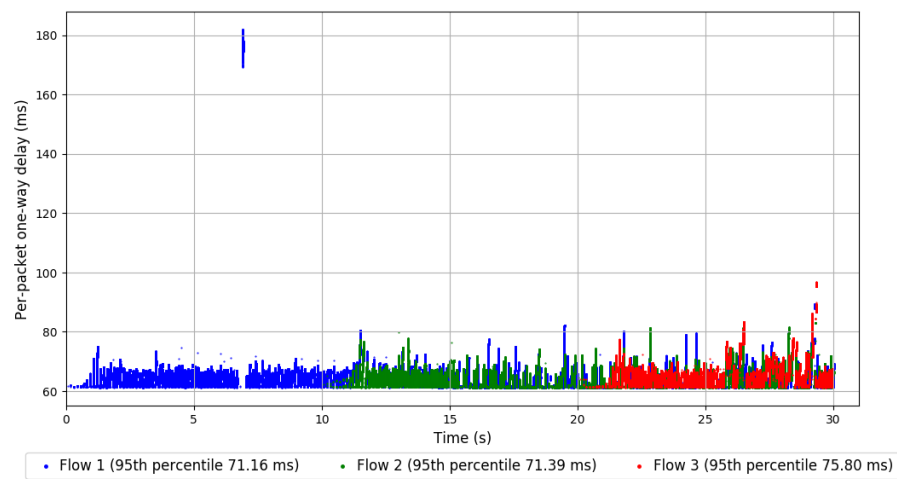
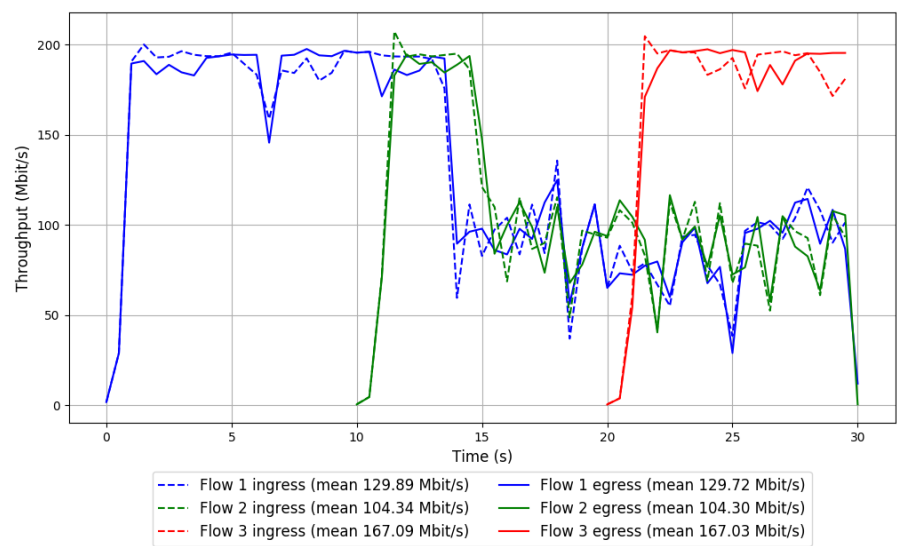
```
Run 1: Statistics of TCP BBR

Start at: 2017-09-19 05:38:44
End at: 2017-09-19 05:39:14

# Below is generated by plot.py at 2017-09-19 08:23:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 254.26 Mbit/s
95th percentile per-packet one-way delay: 72.310 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 129.72 Mbit/s
95th percentile per-packet one-way delay: 71.161 ms
Loss rate: 0.12%
-- Flow 2:
Average throughput: 104.30 Mbit/s
95th percentile per-packet one-way delay: 71.395 ms
Loss rate: 0.04%
-- Flow 3:
Average throughput: 167.03 Mbit/s
95th percentile per-packet one-way delay: 75.799 ms
Loss rate: 0.01%
```



Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2017-09-19 05:47:55

End at: 2017-09-19 05:48:25

# Below is generated by plot.py at 2017-09-19 08:23:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 181.92 Mbit/s

95th percentile per-packet one-way delay: 73.641 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 86.58 Mbit/s

95th percentile per-packet one-way delay: 71.583 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 101.32 Mbit/s

95th percentile per-packet one-way delay: 74.201 ms

Loss rate: 0.40%

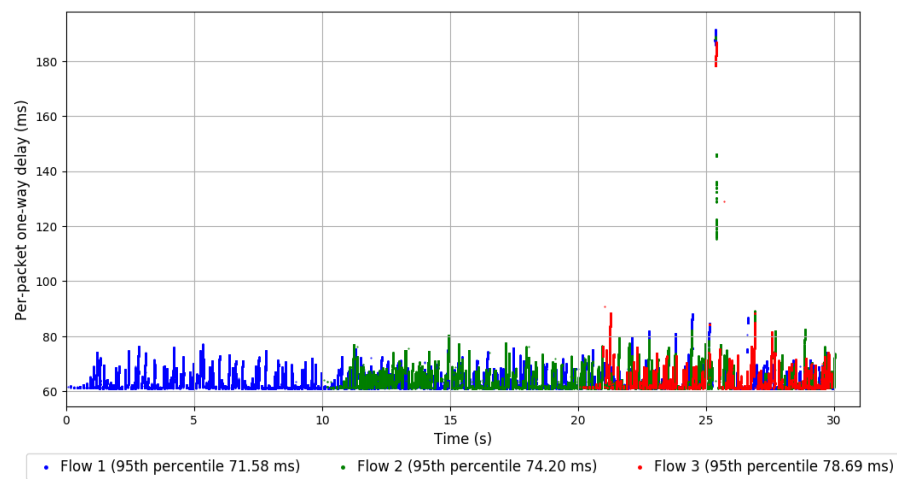
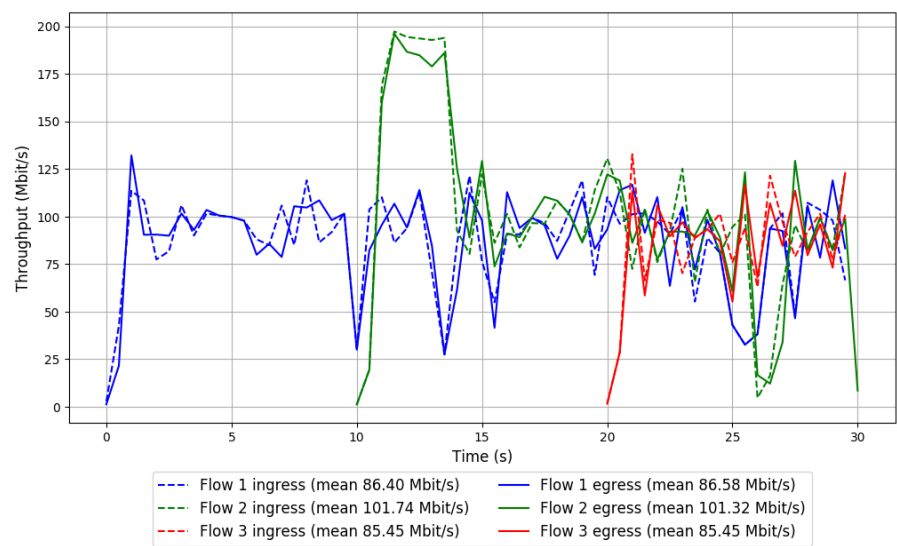
-- Flow 3:

Average throughput: 85.45 Mbit/s

95th percentile per-packet one-way delay: 78.694 ms

Loss rate: 0.00%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-09-19 05:57:09

End at: 2017-09-19 05:57:39

# Below is generated by plot.py at 2017-09-19 08:23:45

# Datalink statistics

-- Total of 3 flows:

Average throughput: 176.05 Mbit/s

95th percentile per-packet one-way delay: 73.873 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 89.61 Mbit/s

95th percentile per-packet one-way delay: 74.243 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 87.62 Mbit/s

95th percentile per-packet one-way delay: 72.639 ms

Loss rate: 0.01%

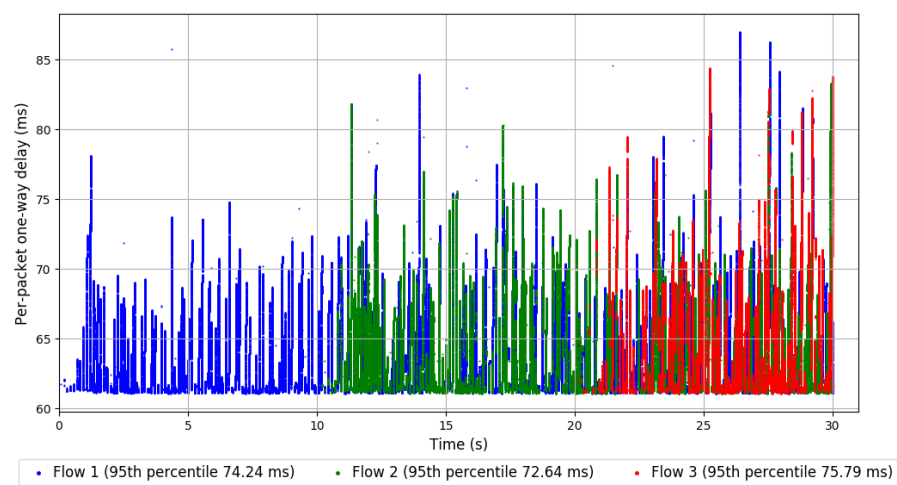
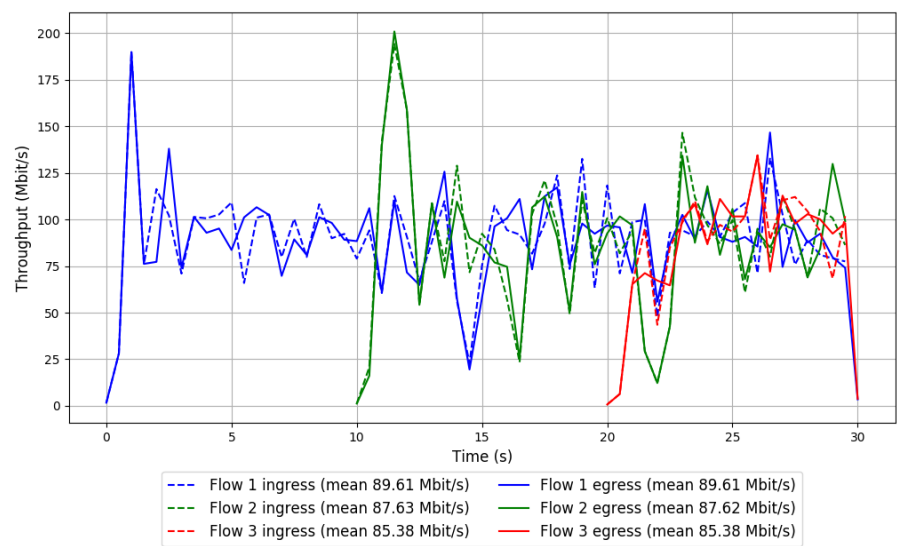
-- Flow 3:

Average throughput: 85.38 Mbit/s

95th percentile per-packet one-way delay: 75.794 ms

Loss rate: 0.01%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2017-09-19 06:06:18

End at: 2017-09-19 06:06:48

# Below is generated by plot.py at 2017-09-19 08:23:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 257.41 Mbit/s

95th percentile per-packet one-way delay: 73.959 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 94.63 Mbit/s

95th percentile per-packet one-way delay: 73.311 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 158.77 Mbit/s

95th percentile per-packet one-way delay: 75.348 ms

Loss rate: 0.00%

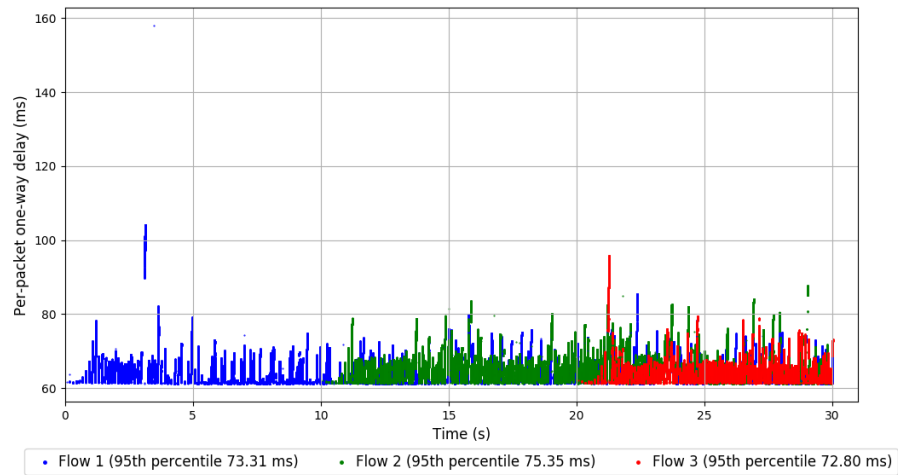
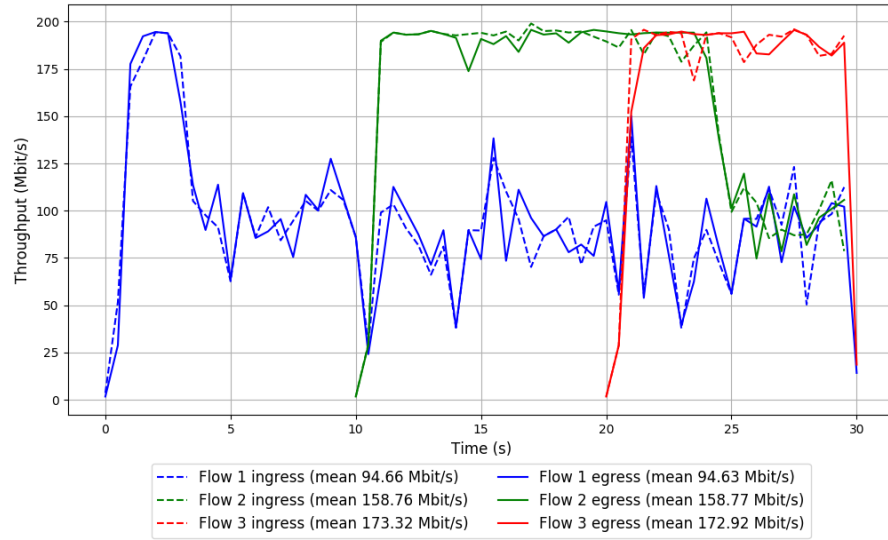
-- Flow 3:

Average throughput: 172.92 Mbit/s

95th percentile per-packet one-way delay: 72.796 ms

Loss rate: 0.16%

#### Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2017-09-19 06:15:39

End at: 2017-09-19 06:16:09

# Below is generated by plot.py at 2017-09-19 08:23:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 177.85 Mbit/s

95th percentile per-packet one-way delay: 72.097 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 88.24 Mbit/s

95th percentile per-packet one-way delay: 71.440 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 94.24 Mbit/s

95th percentile per-packet one-way delay: 72.126 ms

Loss rate: 0.00%

-- Flow 3:

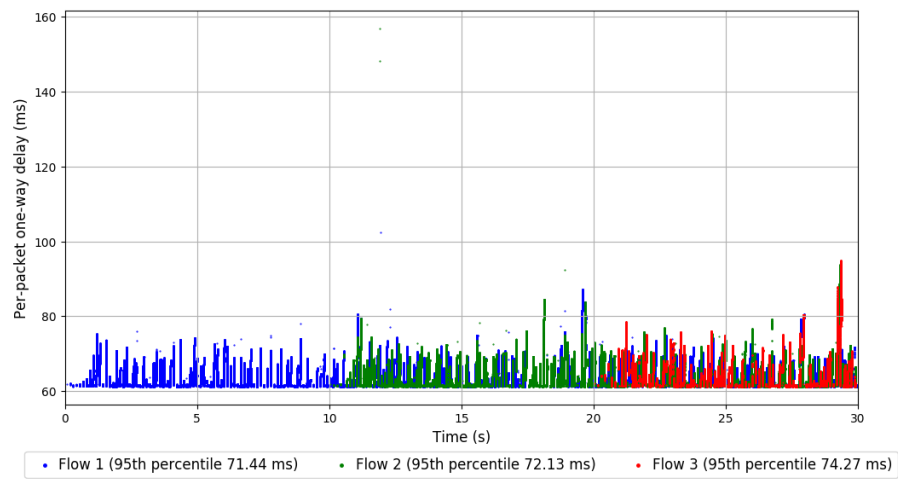
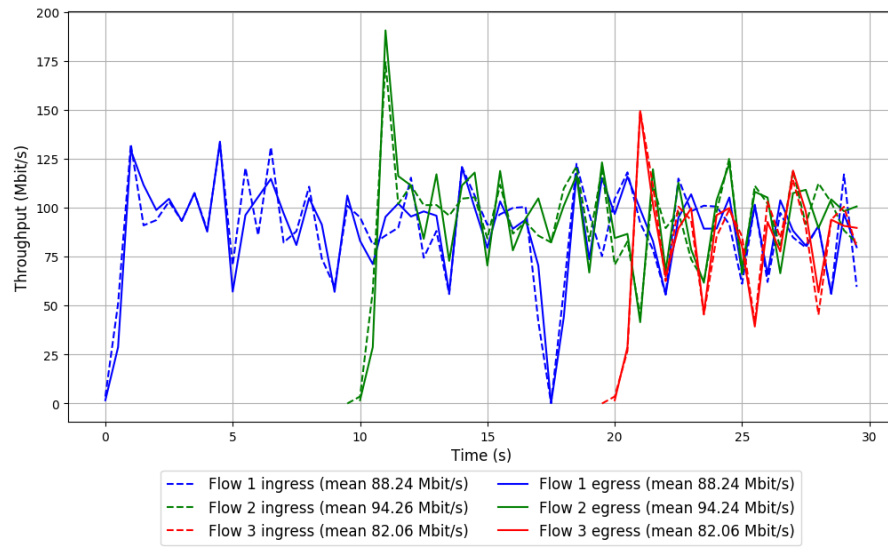
Average throughput: 82.06 Mbit/s

95th percentile per-packet one-way delay: 74.274 ms

Loss rate: 0.00%



## Run 5: Report of TCP BBR — Data Link



Run 6: Statistics of TCP BBR

Start at: 2017-09-19 06:24:49

End at: 2017-09-19 06:25:19

# Below is generated by plot.py at 2017-09-19 08:23:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 180.19 Mbit/s

95th percentile per-packet one-way delay: 74.799 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 92.44 Mbit/s

95th percentile per-packet one-way delay: 73.029 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 89.96 Mbit/s

95th percentile per-packet one-way delay: 77.610 ms

Loss rate: 0.01%

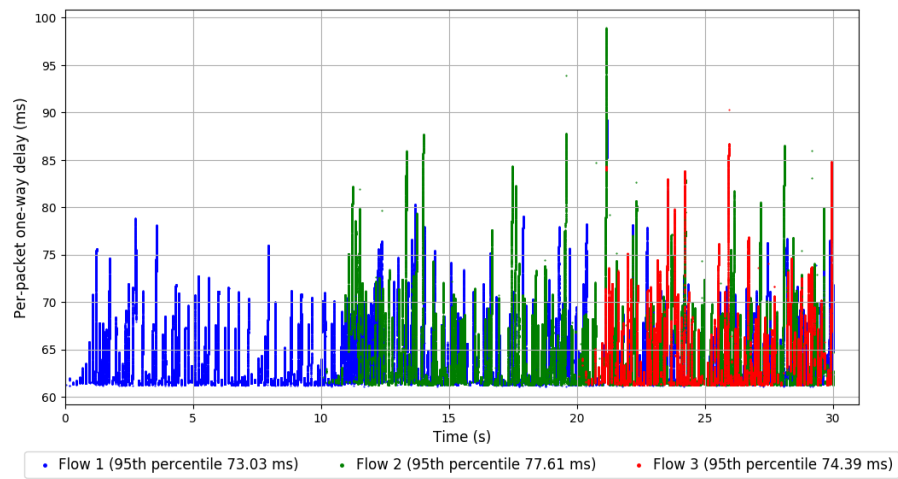
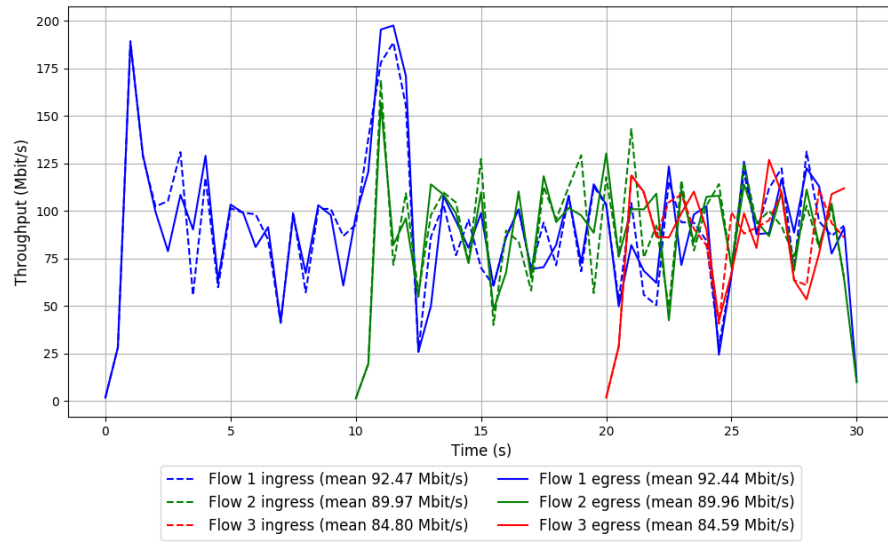
-- Flow 3:

Average throughput: 84.59 Mbit/s

95th percentile per-packet one-way delay: 74.387 ms

Loss rate: 0.02%

## Run 6: Report of TCP BBR — Data Link



Run 7: Statistics of TCP BBR

Start at: 2017-09-19 06:34:01

End at: 2017-09-19 06:34:31

# Below is generated by plot.py at 2017-09-19 08:23:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 174.85 Mbit/s

95th percentile per-packet one-way delay: 71.454 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 84.71 Mbit/s

95th percentile per-packet one-way delay: 69.534 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 92.55 Mbit/s

95th percentile per-packet one-way delay: 73.275 ms

Loss rate: 0.00%

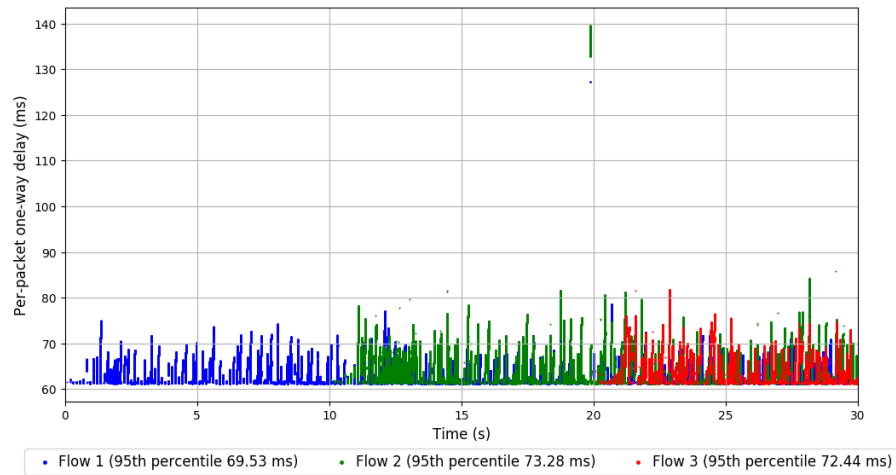
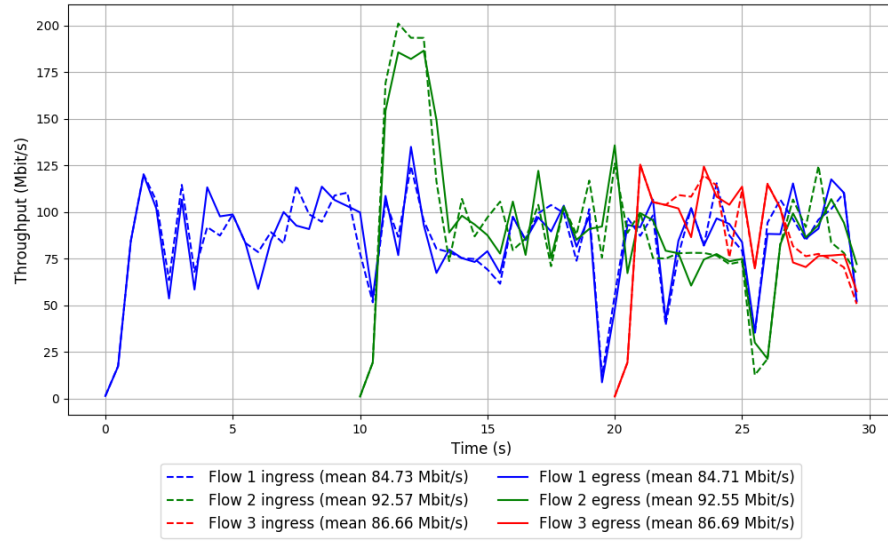
-- Flow 3:

Average throughput: 86.69 Mbit/s

95th percentile per-packet one-way delay: 72.444 ms

Loss rate: 0.00%

## Run 7: Report of TCP BBR — Data Link



Run 8: Statistics of TCP BBR

Start at: 2017-09-19 06:43:25

End at: 2017-09-19 06:43:55

# Below is generated by plot.py at 2017-09-19 08:23:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 177.67 Mbit/s

95th percentile per-packet one-way delay: 74.735 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 91.28 Mbit/s

95th percentile per-packet one-way delay: 73.676 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 86.35 Mbit/s

95th percentile per-packet one-way delay: 74.634 ms

Loss rate: 0.00%

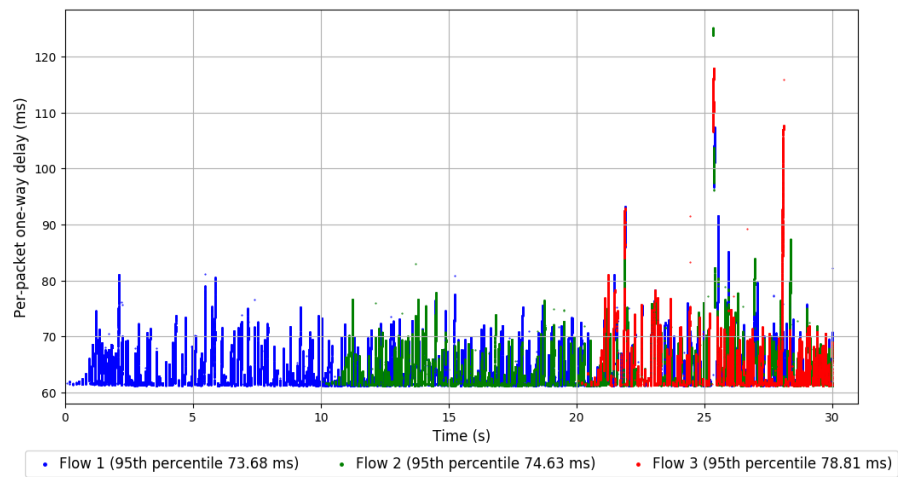
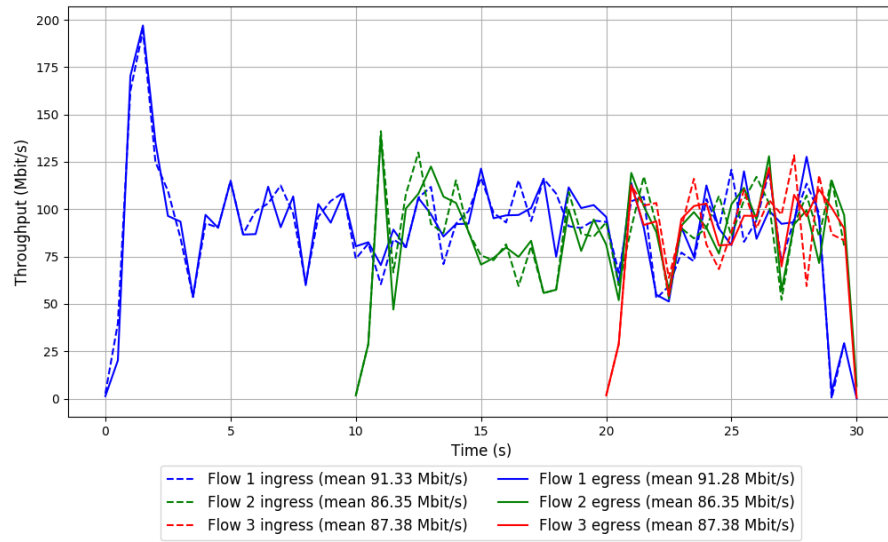
-- Flow 3:

Average throughput: 87.38 Mbit/s

95th percentile per-packet one-way delay: 78.805 ms

Loss rate: 0.00%

# Run 8: Report of TCP BBR — Data Link



Run 9: Statistics of TCP BBR

Start at: 2017-09-19 06:52:57

End at: 2017-09-19 06:53:27

# Below is generated by plot.py at 2017-09-19 08:25:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 177.54 Mbit/s

95th percentile per-packet one-way delay: 72.822 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 94.22 Mbit/s

95th percentile per-packet one-way delay: 71.799 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 84.54 Mbit/s

95th percentile per-packet one-way delay: 73.557 ms

Loss rate: 0.04%

-- Flow 3:

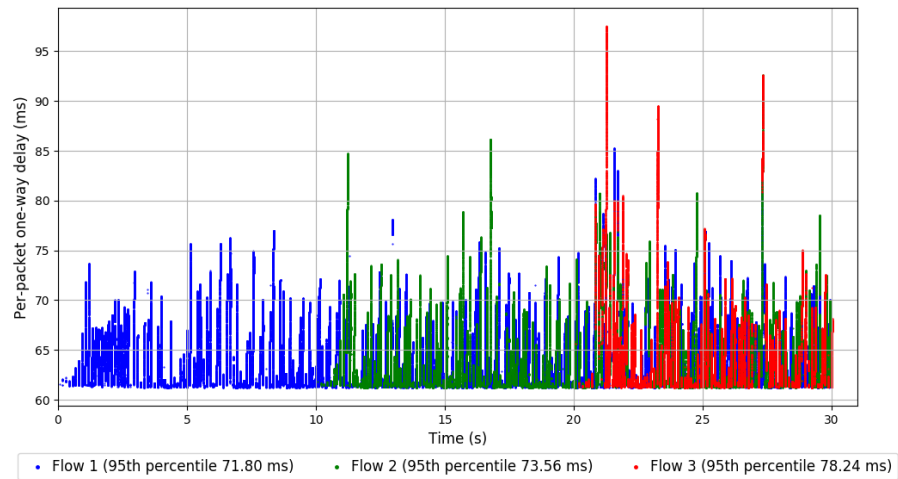
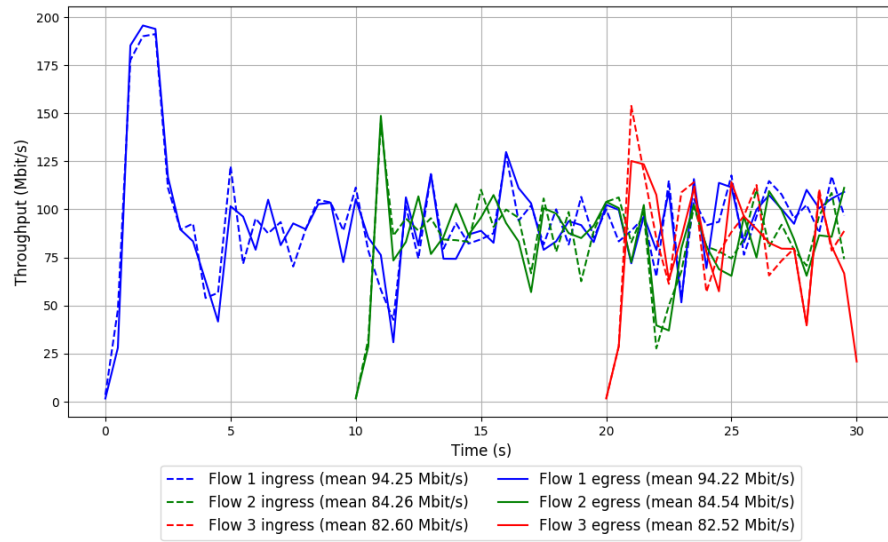
Average throughput: 82.52 Mbit/s

95th percentile per-packet one-way delay: 78.240 ms

Loss rate: 0.08%



### Run 9: Report of TCP BBR — Data Link



Run 10: Statistics of TCP BBR

Start at: 2017-09-19 07:02:06

End at: 2017-09-19 07:02:36

# Below is generated by plot.py at 2017-09-19 08:25:16

# Datalink statistics

-- Total of 3 flows:

Average throughput: 175.30 Mbit/s

95th percentile per-packet one-way delay: 73.566 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 87.93 Mbit/s

95th percentile per-packet one-way delay: 72.835 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 85.93 Mbit/s

95th percentile per-packet one-way delay: 73.491 ms

Loss rate: 0.00%

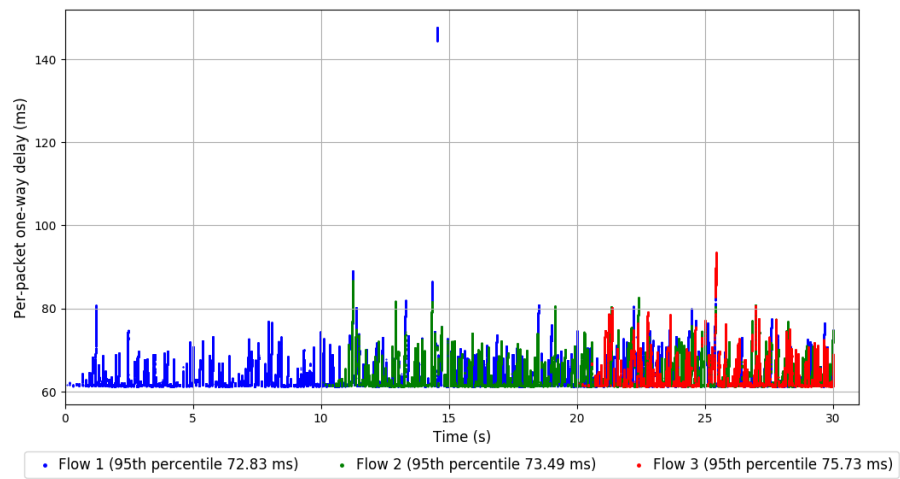
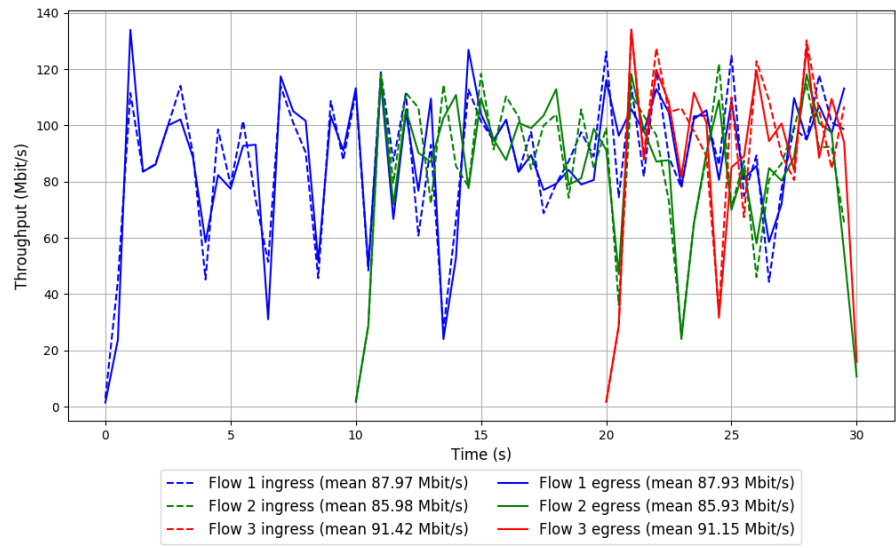
-- Flow 3:

Average throughput: 91.15 Mbit/s

95th percentile per-packet one-way delay: 75.726 ms

Loss rate: 0.24%

# Run 10: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2017-09-19 05:31:29

End at: 2017-09-19 05:31:59

# Below is generated by plot.py at 2017-09-19 08:26:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 229.15 Mbit/s

95th percentile per-packet one-way delay: 67.050 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 100.24 Mbit/s

95th percentile per-packet one-way delay: 66.490 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 144.39 Mbit/s

95th percentile per-packet one-way delay: 67.614 ms

Loss rate: 0.00%

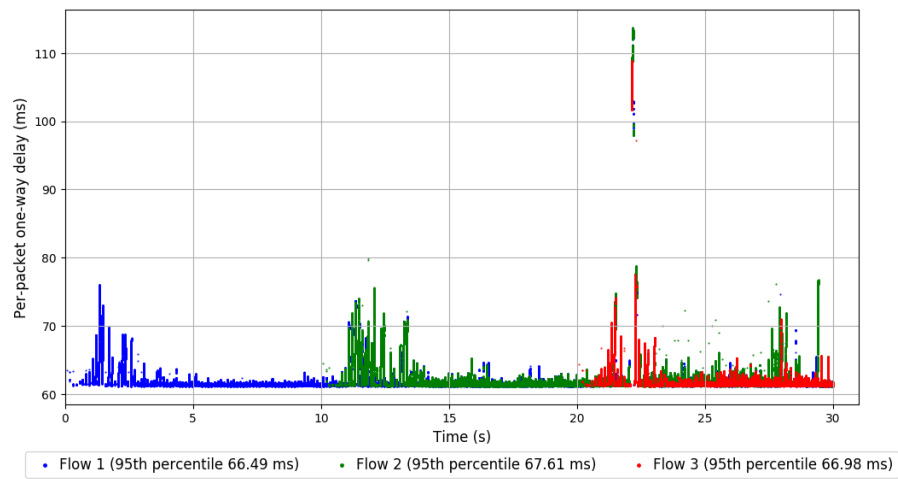
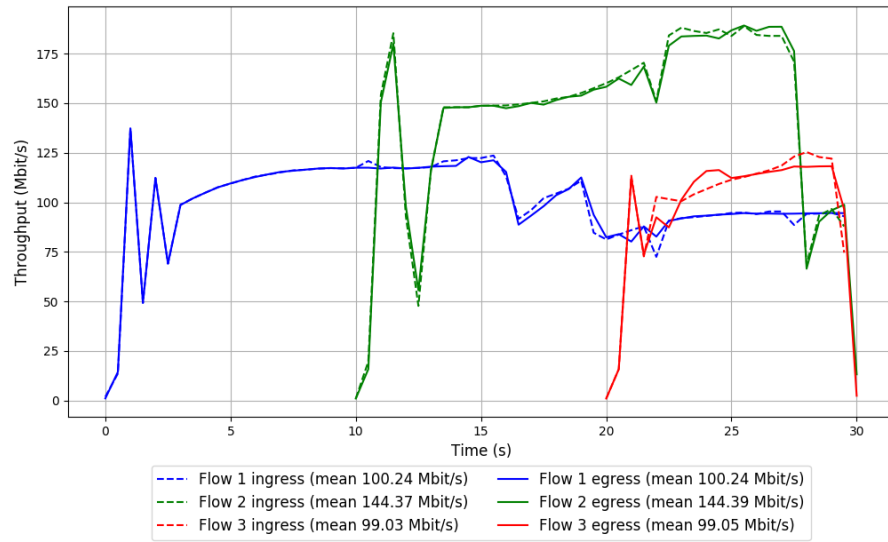
-- Flow 3:

Average throughput: 99.05 Mbit/s

95th percentile per-packet one-way delay: 66.976 ms

Loss rate: 0.00%

# Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2017-09-19 05:40:52

End at: 2017-09-19 05:41:22

# Below is generated by plot.py at 2017-09-19 08:26:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 179.85 Mbit/s

95th percentile per-packet one-way delay: 66.970 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 86.77 Mbit/s

95th percentile per-packet one-way delay: 66.090 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 81.05 Mbit/s

95th percentile per-packet one-way delay: 66.752 ms

Loss rate: 0.00%

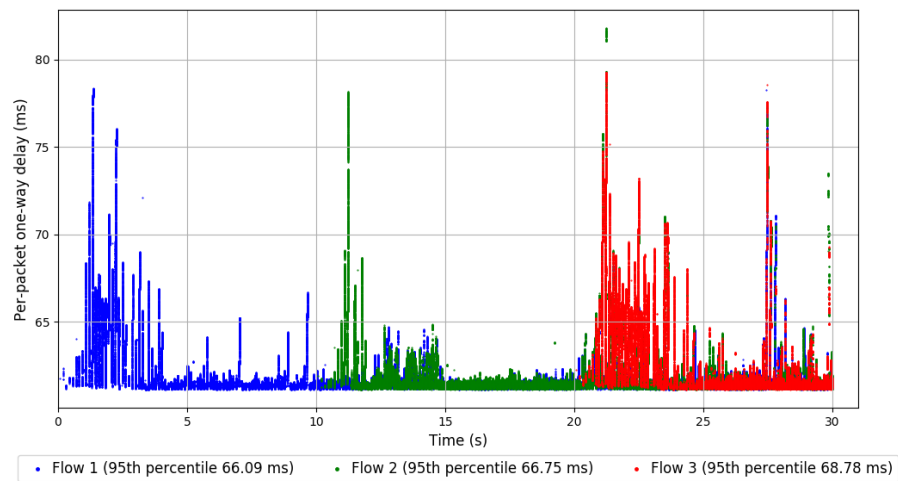
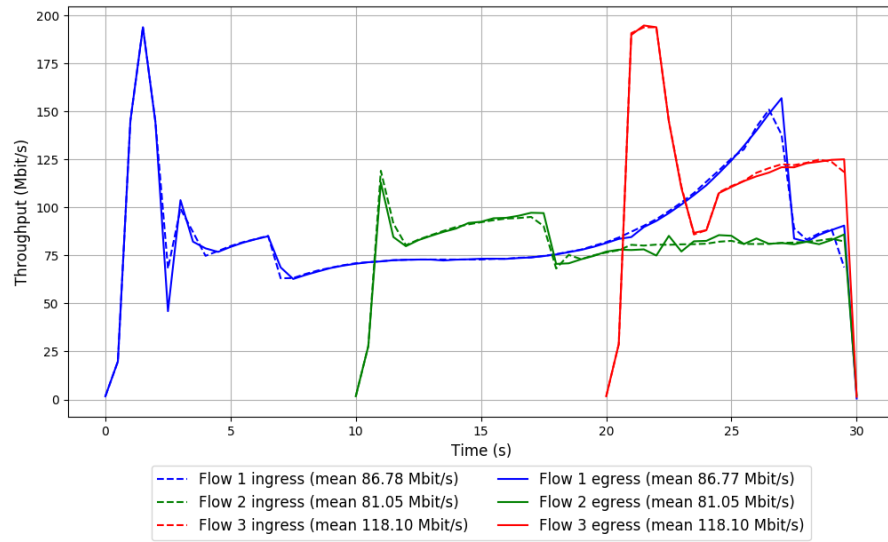
-- Flow 3:

Average throughput: 118.10 Mbit/s

95th percentile per-packet one-way delay: 68.776 ms

Loss rate: 0.00%

## Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2017-09-19 05:49:55

End at: 2017-09-19 05:50:25

# Below is generated by plot.py at 2017-09-19 08:26:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 165.31 Mbit/s

95th percentile per-packet one-way delay: 63.721 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 86.55 Mbit/s

95th percentile per-packet one-way delay: 63.826 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 116.89 Mbit/s

95th percentile per-packet one-way delay: 63.616 ms

Loss rate: 0.00%

-- Flow 3:

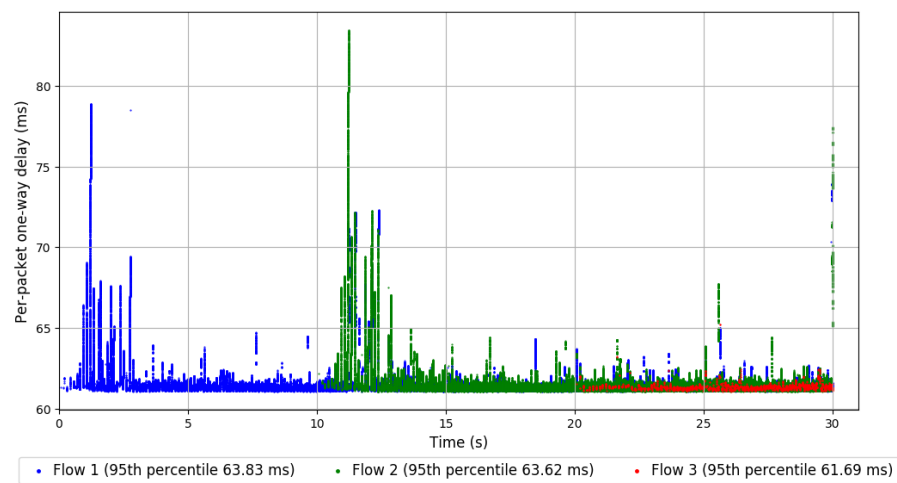
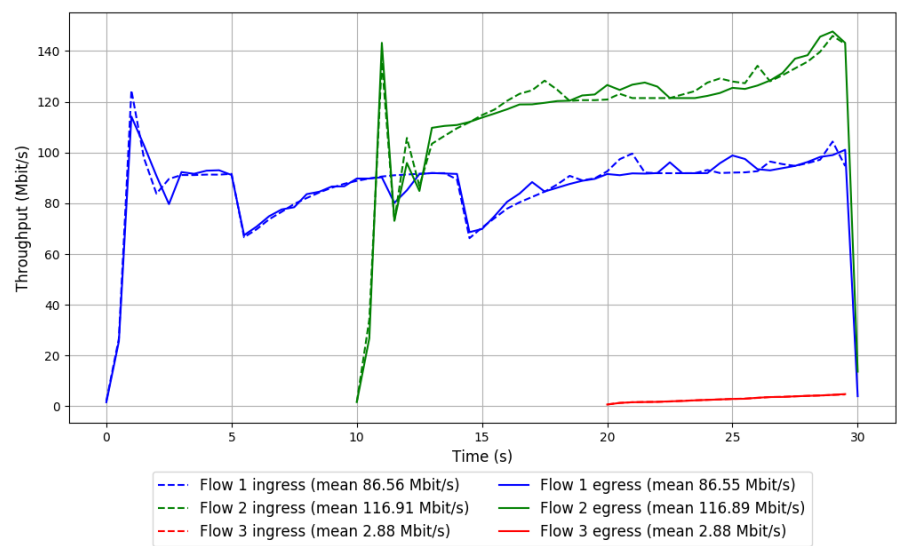
Average throughput: 2.88 Mbit/s

95th percentile per-packet one-way delay: 61.692 ms

Loss rate: 0.08%



Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2017-09-19 05:59:07

End at: 2017-09-19 05:59:37

# Below is generated by plot.py at 2017-09-19 08:26:12

# Datalink statistics

-- Total of 3 flows:

Average throughput: 198.02 Mbit/s

95th percentile per-packet one-way delay: 64.825 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 89.35 Mbit/s

95th percentile per-packet one-way delay: 64.339 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 88.11 Mbit/s

95th percentile per-packet one-way delay: 65.871 ms

Loss rate: 0.00%

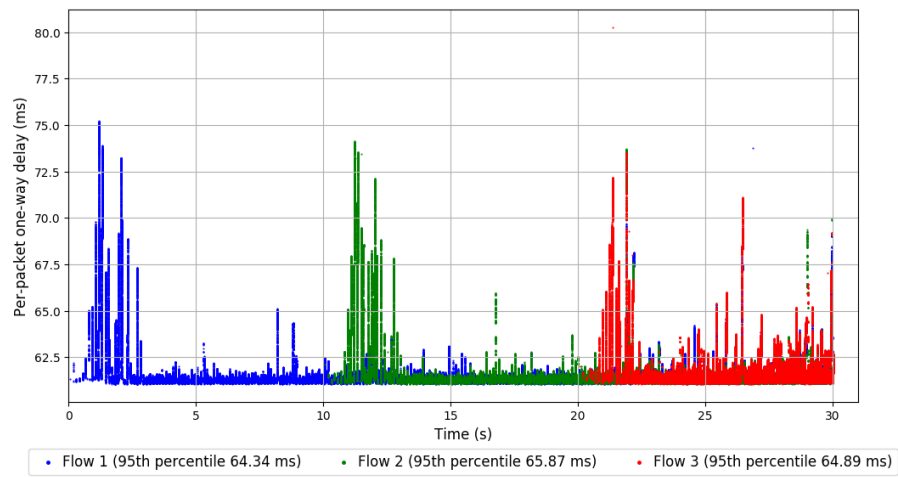
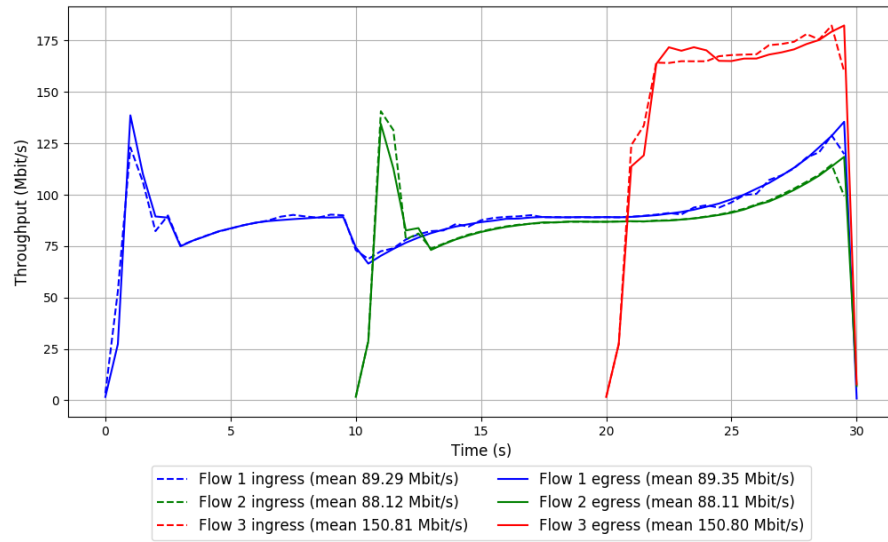
-- Flow 3:

Average throughput: 150.80 Mbit/s

95th percentile per-packet one-way delay: 64.891 ms

Loss rate: 0.00%

#### Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2017-09-19 06:08:22

End at: 2017-09-19 06:08:52

# Below is generated by plot.py at 2017-09-19 08:27:03

# Datalink statistics

-- Total of 3 flows:

Average throughput: 189.04 Mbit/s

95th percentile per-packet one-way delay: 68.227 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 100.69 Mbit/s

95th percentile per-packet one-way delay: 68.822 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 90.34 Mbit/s

95th percentile per-packet one-way delay: 67.454 ms

Loss rate: 0.01%

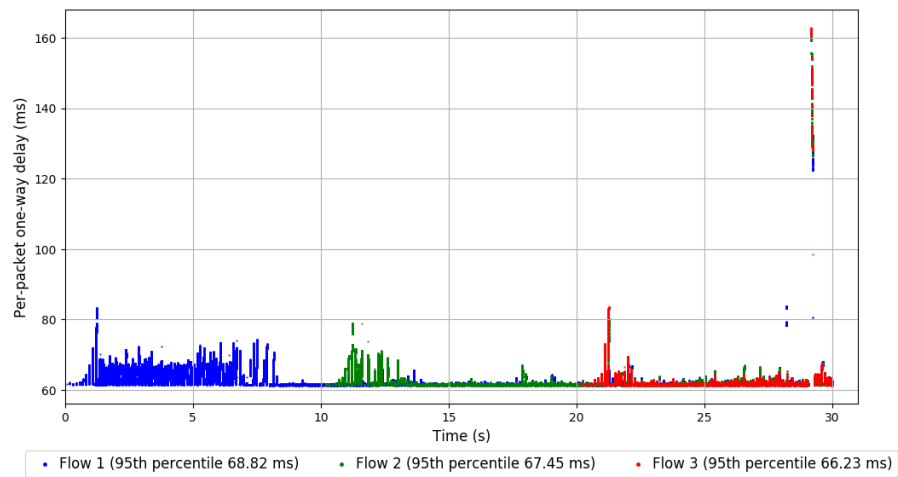
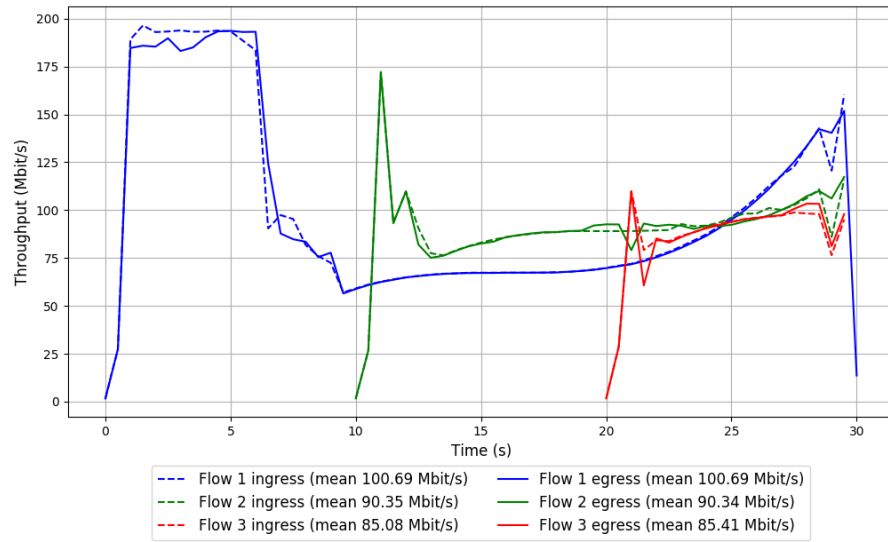
-- Flow 3:

Average throughput: 85.41 Mbit/s

95th percentile per-packet one-way delay: 66.230 ms

Loss rate: 0.00%

## Run 5: Report of TCP Cubic — Data Link



Run 6: Statistics of TCP Cubic

Start at: 2017-09-19 06:17:38

End at: 2017-09-19 06:18:09

# Below is generated by plot.py at 2017-09-19 08:27:43

# Datalink statistics

-- Total of 3 flows:

Average throughput: 212.94 Mbit/s

95th percentile per-packet one-way delay: 67.741 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 114.37 Mbit/s

95th percentile per-packet one-way delay: 66.710 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 94.04 Mbit/s

95th percentile per-packet one-way delay: 69.279 ms

Loss rate: 0.00%

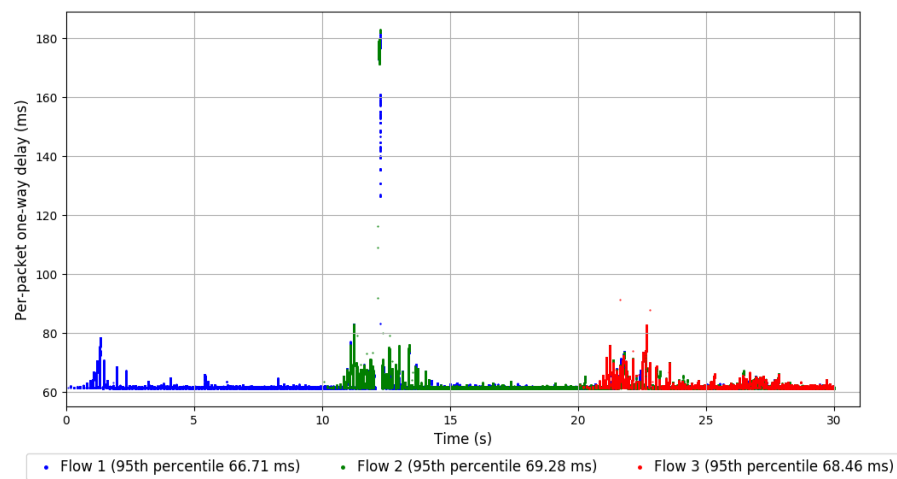
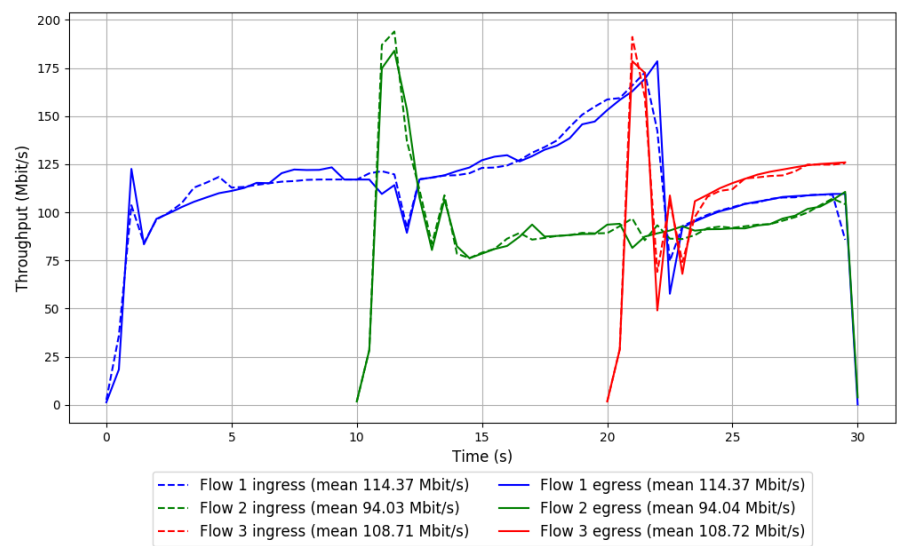
-- Flow 3:

Average throughput: 108.72 Mbit/s

95th percentile per-packet one-way delay: 68.459 ms

Loss rate: 0.00%

Run 6: Report of TCP Cubic — Data Link



Run 7: Statistics of TCP Cubic

Start at: 2017-09-19 06:26:49

End at: 2017-09-19 06:27:19

# Below is generated by plot.py at 2017-09-19 08:28:35

# Datalink statistics

-- Total of 3 flows:

Average throughput: 215.62 Mbit/s

95th percentile per-packet one-way delay: 64.981 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 117.21 Mbit/s

95th percentile per-packet one-way delay: 65.153 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 90.45 Mbit/s

95th percentile per-packet one-way delay: 66.064 ms

Loss rate: 0.00%

-- Flow 3:

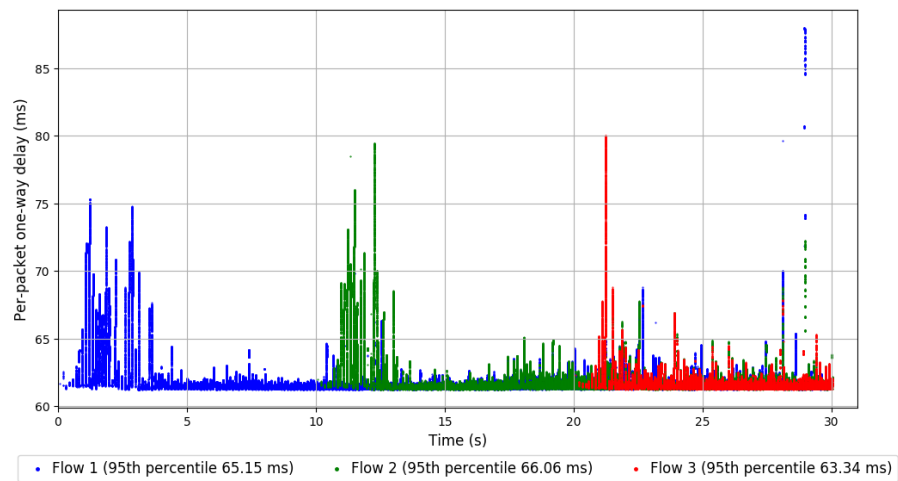
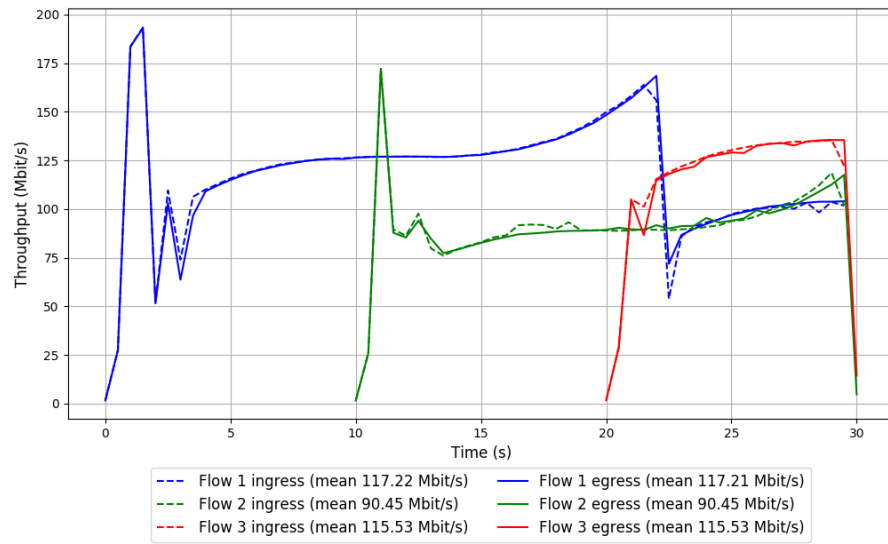
Average throughput: 115.53 Mbit/s

95th percentile per-packet one-way delay: 63.335 ms

Loss rate: 0.00%



## Run 7: Report of TCP Cubic — Data Link



Run 8: Statistics of TCP Cubic

Start at: 2017-09-19 06:36:00

End at: 2017-09-19 06:36:30

# Below is generated by plot.py at 2017-09-19 08:28:46

# Datalink statistics

-- Total of 3 flows:

Average throughput: 222.70 Mbit/s

95th percentile per-packet one-way delay: 67.610 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 118.83 Mbit/s

95th percentile per-packet one-way delay: 67.111 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 108.92 Mbit/s

95th percentile per-packet one-way delay: 68.035 ms

Loss rate: 0.01%

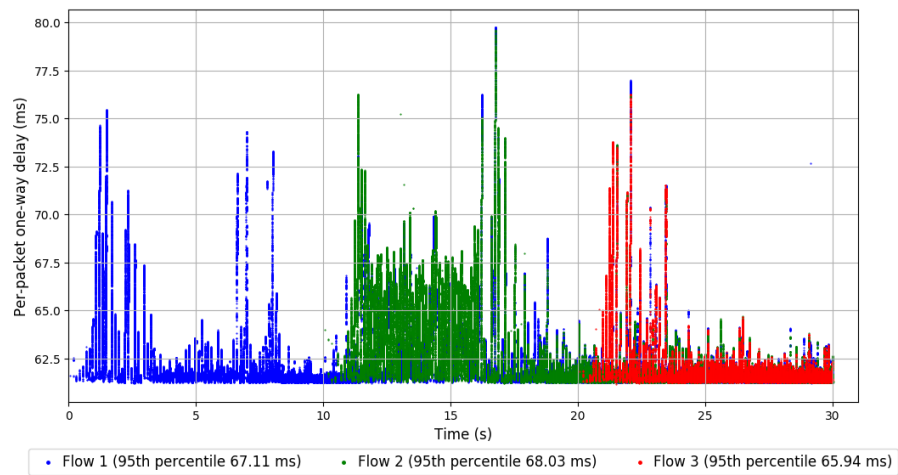
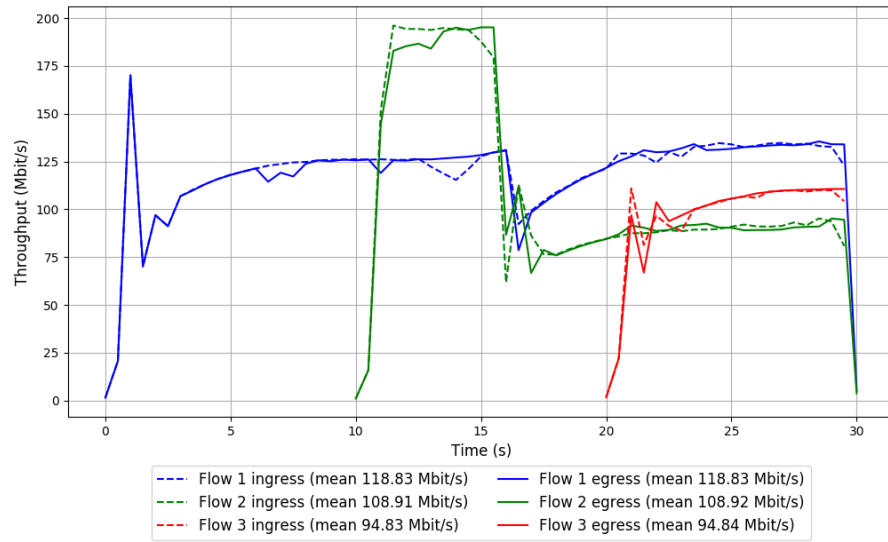
-- Flow 3:

Average throughput: 94.84 Mbit/s

95th percentile per-packet one-way delay: 65.936 ms

Loss rate: 0.00%

## Run 8: Report of TCP Cubic — Data Link



Run 9: Statistics of TCP Cubic

Start at: 2017-09-19 06:45:27

End at: 2017-09-19 06:45:57

# Below is generated by plot.py at 2017-09-19 08:30:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 296.72 Mbit/s

95th percentile per-packet one-way delay: 72.412 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 136.77 Mbit/s

95th percentile per-packet one-way delay: 67.930 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 181.39 Mbit/s

95th percentile per-packet one-way delay: 74.553 ms

Loss rate: 0.02%

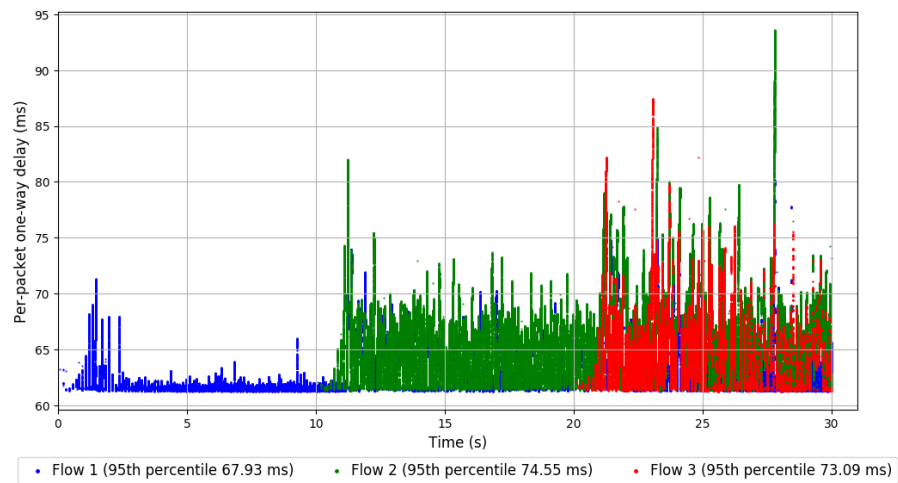
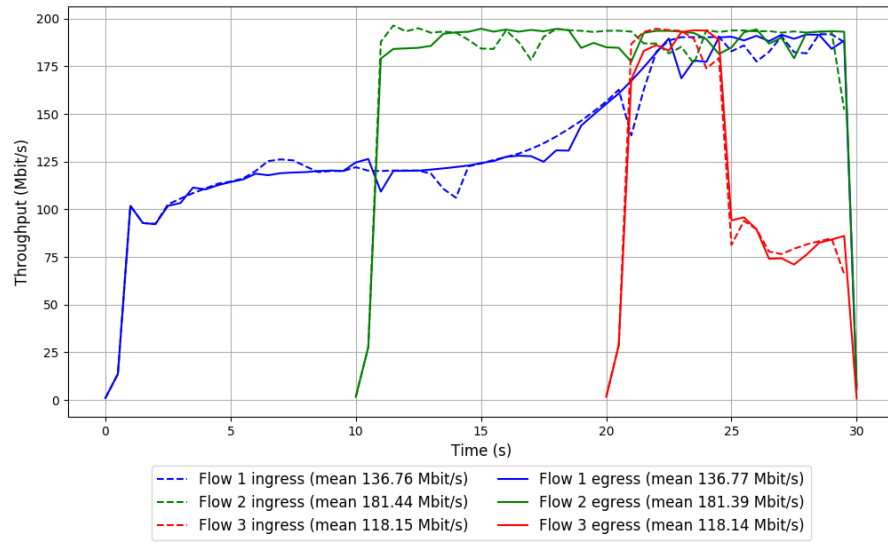
-- Flow 3:

Average throughput: 118.14 Mbit/s

95th percentile per-packet one-way delay: 73.095 ms

Loss rate: 0.01%

## Run 9: Report of TCP Cubic — Data Link



Run 10: Statistics of TCP Cubic

Start at: 2017-09-19 06:54:55

End at: 2017-09-19 06:55:25

# Below is generated by plot.py at 2017-09-19 08:30:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 215.47 Mbit/s

95th percentile per-packet one-way delay: 69.042 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 185.79 Mbit/s

95th percentile per-packet one-way delay: 69.191 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 42.62 Mbit/s

95th percentile per-packet one-way delay: 67.129 ms

Loss rate: 0.03%

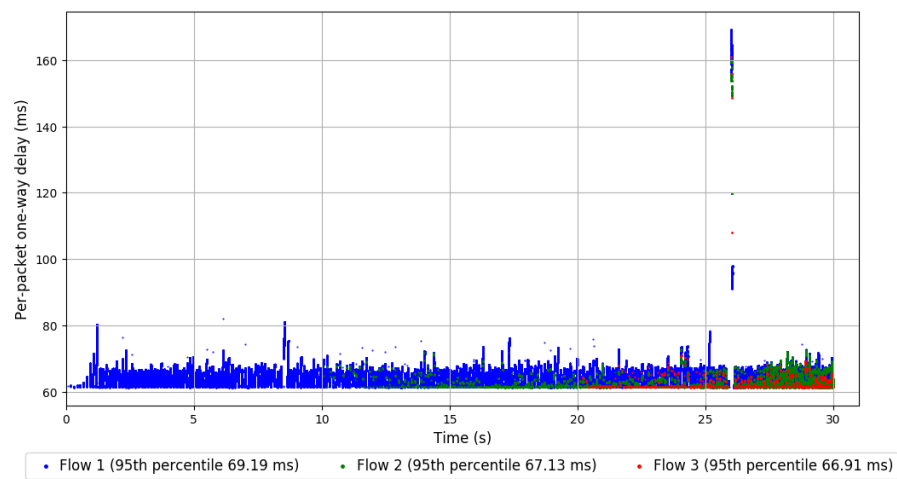
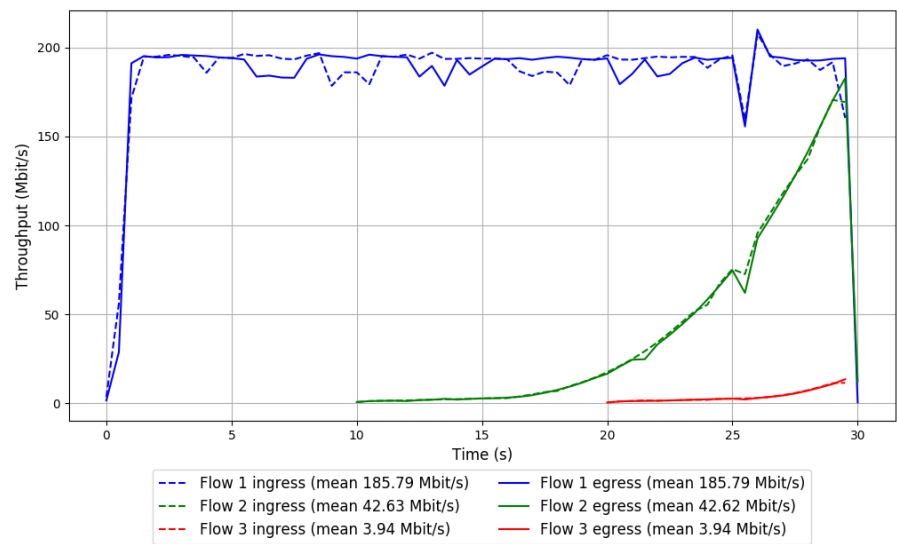
-- Flow 3:

Average throughput: 3.94 Mbit/s

95th percentile per-packet one-way delay: 66.908 ms

Loss rate: 0.15%

Run 10: Report of TCP Cubic — Data Link



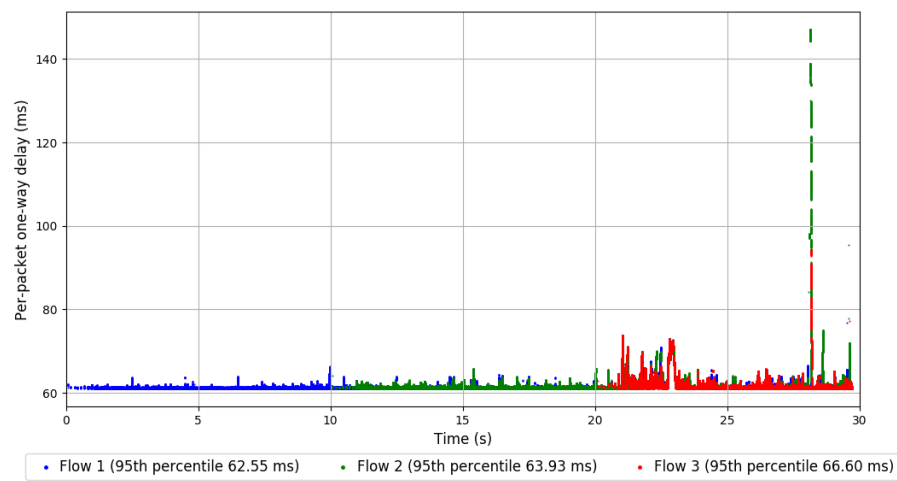
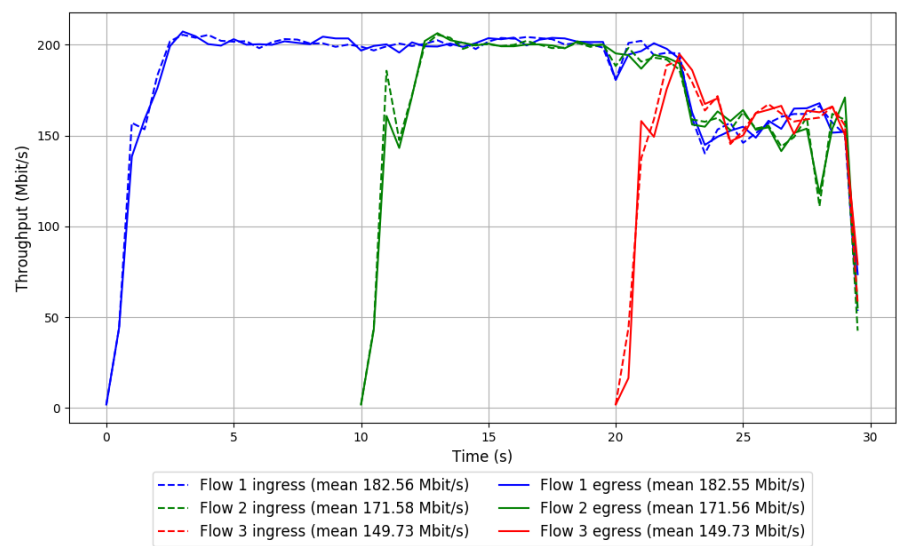
```
Run 1: Statistics of Indigo

Start at: 2017-09-19 05:37:38
End at: 2017-09-19 05:38:08

# Below is generated by plot.py at 2017-09-19 08:31:23
# Datalink statistics
-- Total of 3 flows:
Average throughput: 344.65 Mbit/s
95th percentile per-packet one-way delay: 63.457 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 182.55 Mbit/s
95th percentile per-packet one-way delay: 62.550 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 171.56 Mbit/s
95th percentile per-packet one-way delay: 63.932 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 149.73 Mbit/s
95th percentile per-packet one-way delay: 66.600 ms
Loss rate: 0.01%
```



Run 1: Report of Indigo — Data Link



Run 2: Statistics of Indigo

Start at: 2017-09-19 05:46:49

End at: 2017-09-19 05:47:19

# Below is generated by plot.py at 2017-09-19 08:31:51

# Datalink statistics

-- Total of 3 flows:

Average throughput: 344.56 Mbit/s

95th percentile per-packet one-way delay: 62.477 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 181.20 Mbit/s

95th percentile per-packet one-way delay: 62.065 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 171.54 Mbit/s

95th percentile per-packet one-way delay: 62.826 ms

Loss rate: 0.00%

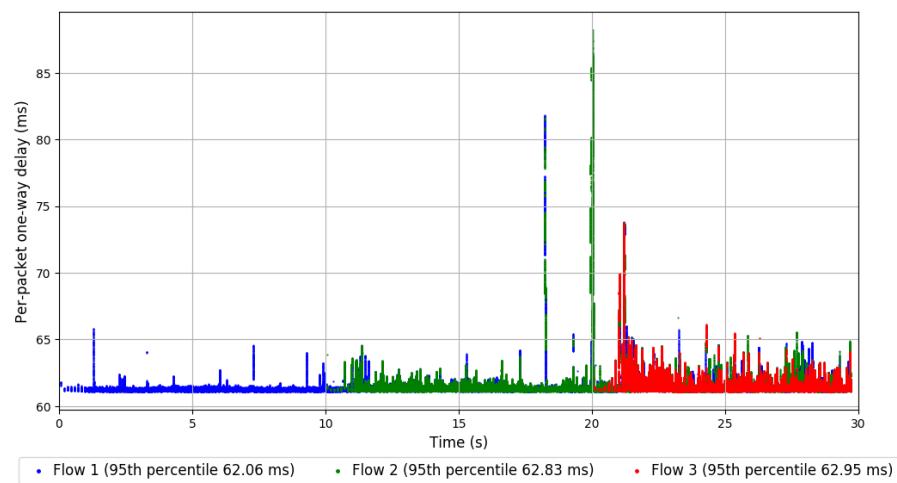
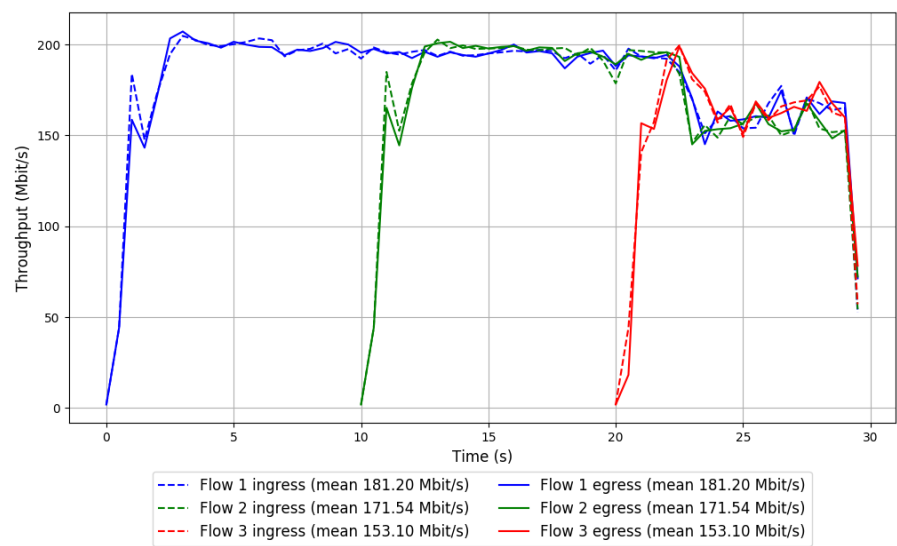
-- Flow 3:

Average throughput: 153.10 Mbit/s

95th percentile per-packet one-way delay: 62.954 ms

Loss rate: 0.00%

Run 2: Report of Indigo — Data Link



Run 3: Statistics of Indigo

Start at: 2017-09-19 05:56:03

End at: 2017-09-19 05:56:33

# Below is generated by plot.py at 2017-09-19 08:32:55

# Datalink statistics

-- Total of 3 flows:

Average throughput: 346.20 Mbit/s

95th percentile per-packet one-way delay: 63.609 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 183.12 Mbit/s

95th percentile per-packet one-way delay: 63.003 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 171.26 Mbit/s

95th percentile per-packet one-way delay: 64.708 ms

Loss rate: 0.00%

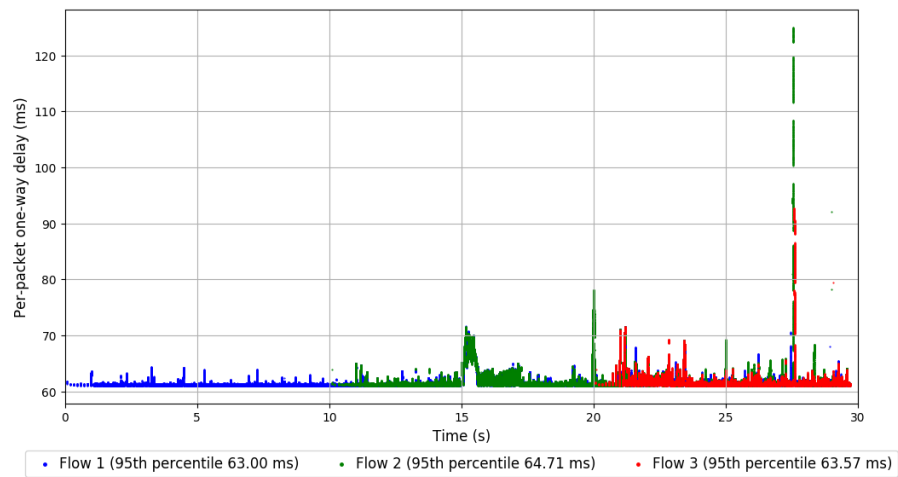
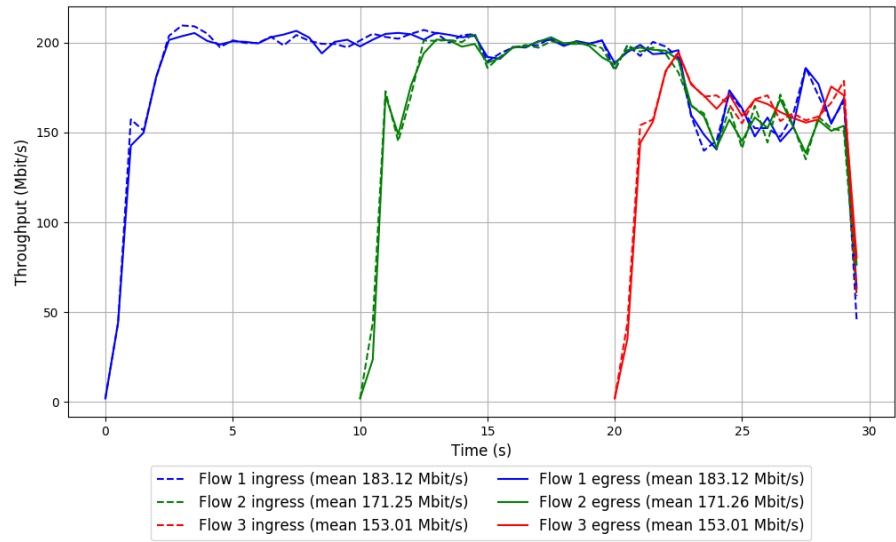
-- Flow 3:

Average throughput: 153.01 Mbit/s

95th percentile per-packet one-way delay: 63.567 ms

Loss rate: 0.00%

### Run 3: Report of Indigo — Data Link



Run 4: Statistics of Indigo

Start at: 2017-09-19 06:05:12

End at: 2017-09-19 06:05:42

# Below is generated by plot.py at 2017-09-19 08:33:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 347.45 Mbit/s

95th percentile per-packet one-way delay: 62.927 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 182.01 Mbit/s

95th percentile per-packet one-way delay: 62.365 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 173.77 Mbit/s

95th percentile per-packet one-way delay: 63.350 ms

Loss rate: 0.00%

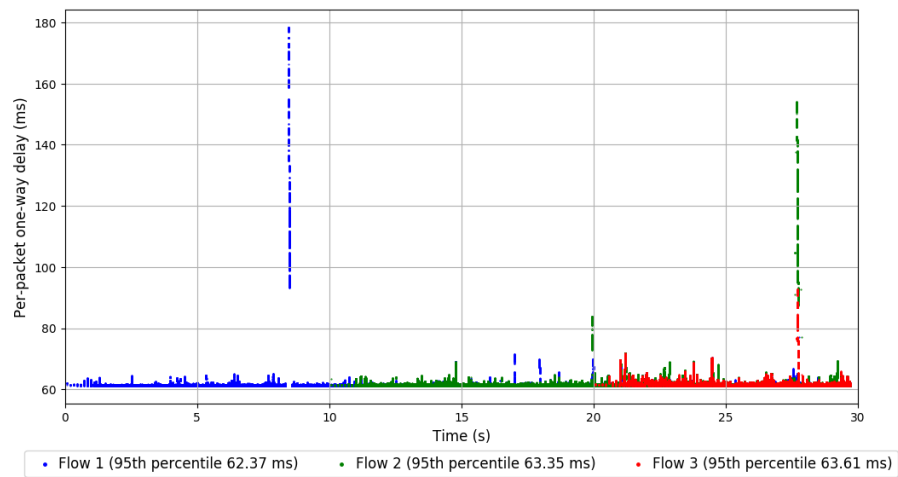
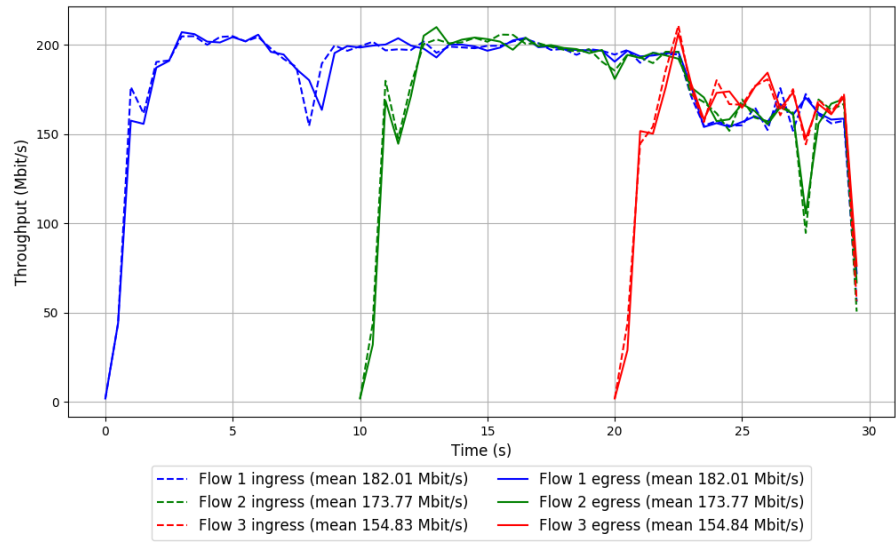
-- Flow 3:

Average throughput: 154.84 Mbit/s

95th percentile per-packet one-way delay: 63.612 ms

Loss rate: 0.00%

#### Run 4: Report of Indigo — Data Link



Run 5: Statistics of Indigo

Start at: 2017-09-19 06:14:33

End at: 2017-09-19 06:15:03

# Below is generated by plot.py at 2017-09-19 08:34:31

# Datalink statistics

-- Total of 3 flows:

Average throughput: 345.26 Mbit/s

95th percentile per-packet one-way delay: 63.579 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 178.19 Mbit/s

95th percentile per-packet one-way delay: 63.098 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 173.54 Mbit/s

95th percentile per-packet one-way delay: 63.999 ms

Loss rate: 0.00%

-- Flow 3:

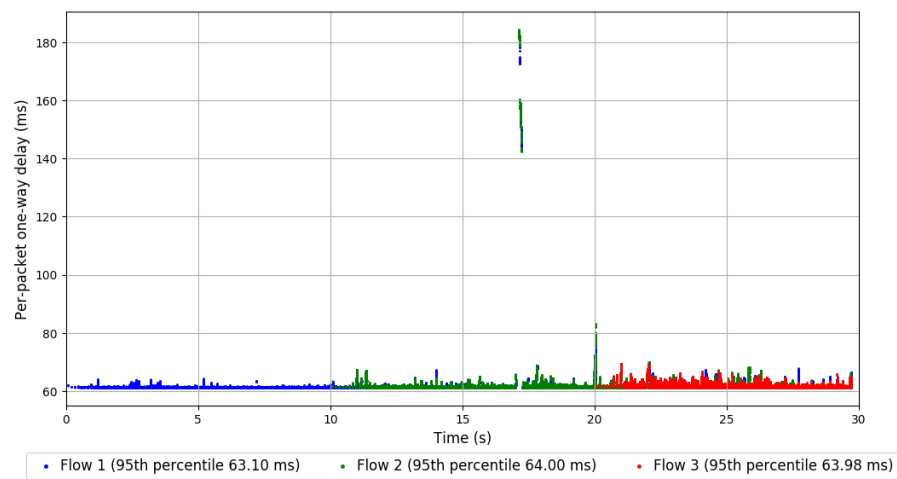
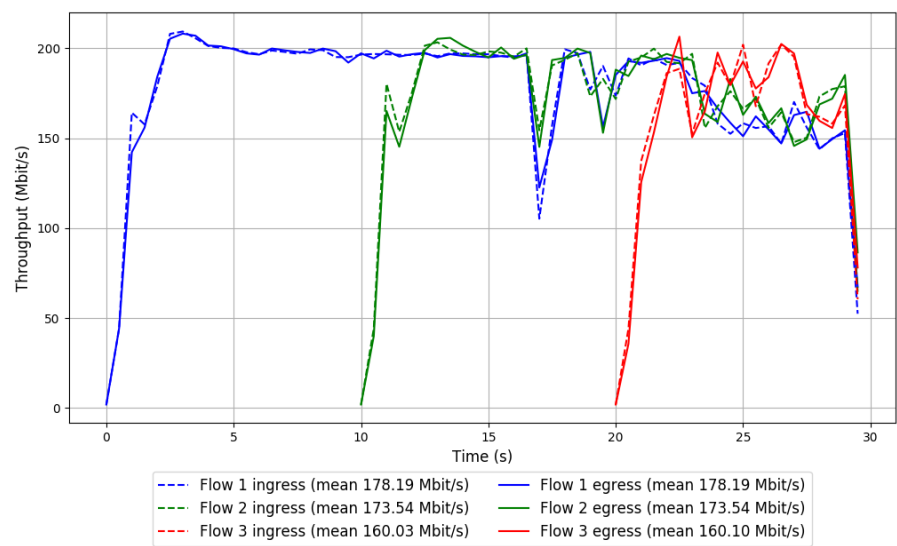
Average throughput: 160.10 Mbit/s

95th percentile per-packet one-way delay: 63.975 ms

Loss rate: 0.00%



Run 5: Report of Indigo — Data Link



Run 6: Statistics of Indigo

Start at: 2017-09-19 06:23:43

End at: 2017-09-19 06:24:13

# Below is generated by plot.py at 2017-09-19 08:34:40

# Datalink statistics

-- Total of 3 flows:

Average throughput: 345.12 Mbit/s

95th percentile per-packet one-way delay: 64.489 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 182.66 Mbit/s

95th percentile per-packet one-way delay: 63.569 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 172.05 Mbit/s

95th percentile per-packet one-way delay: 64.683 ms

Loss rate: 0.00%

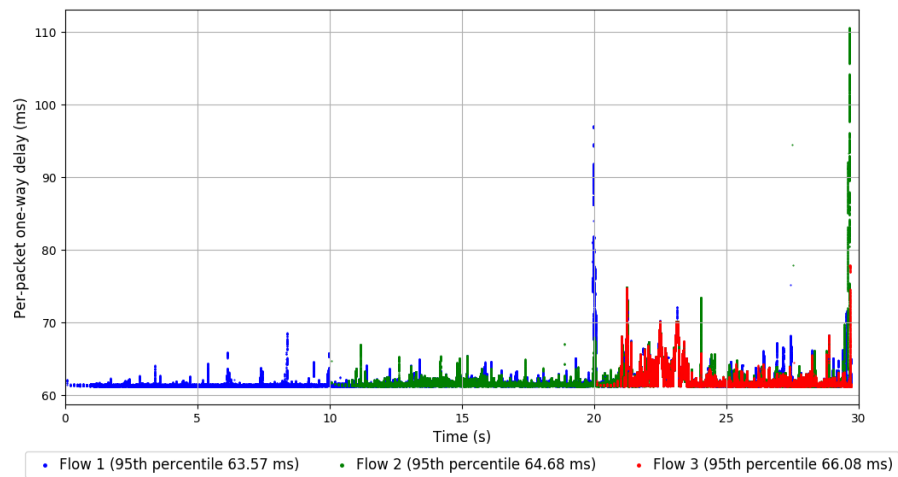
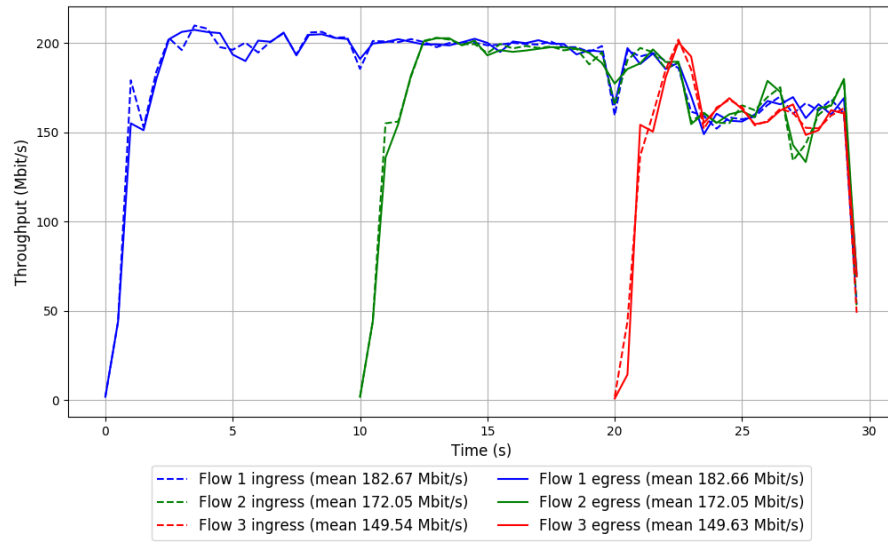
-- Flow 3:

Average throughput: 149.63 Mbit/s

95th percentile per-packet one-way delay: 66.083 ms

Loss rate: 0.00%

## Run 6: Report of Indigo — Data Link



Run 7: Statistics of Indigo

Start at: 2017-09-19 06:32:55

End at: 2017-09-19 06:33:25

# Below is generated by plot.py at 2017-09-19 08:34:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 344.55 Mbit/s

95th percentile per-packet one-way delay: 68.814 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 180.87 Mbit/s

95th percentile per-packet one-way delay: 66.459 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 170.91 Mbit/s

95th percentile per-packet one-way delay: 68.969 ms

Loss rate: 0.00%

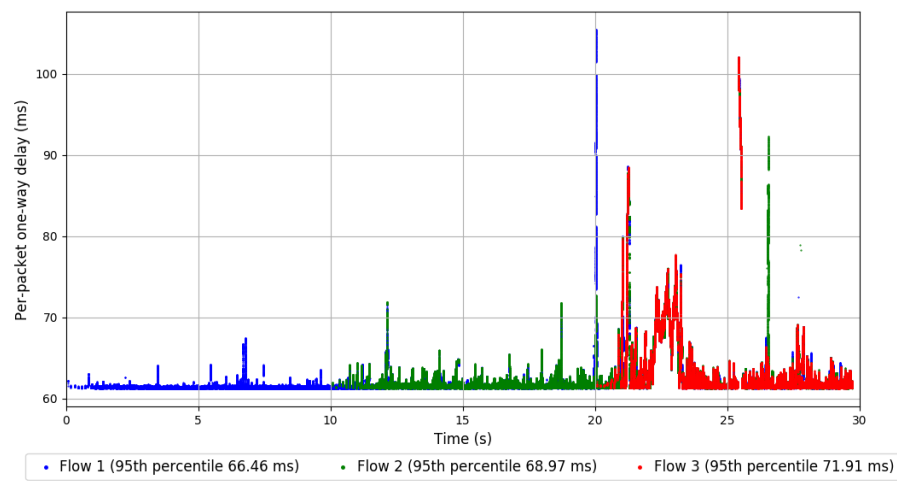
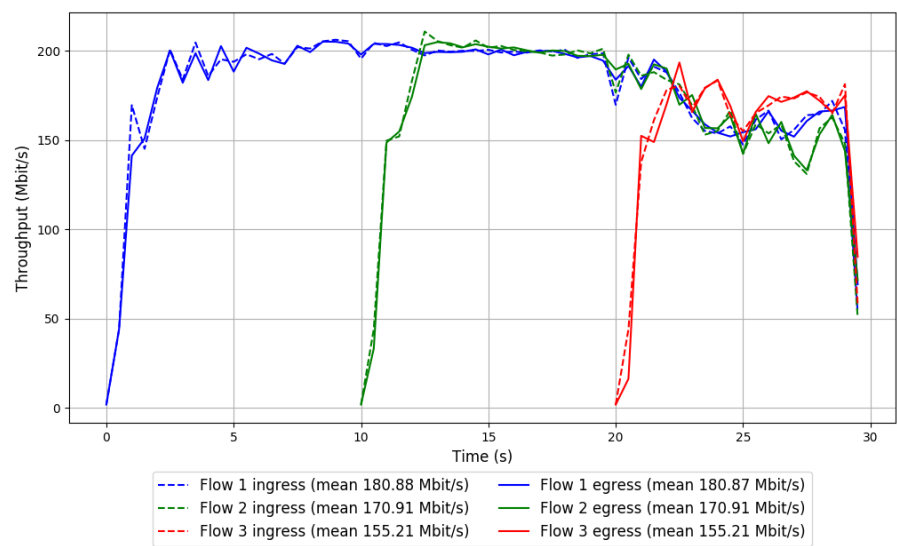
-- Flow 3:

Average throughput: 155.21 Mbit/s

95th percentile per-packet one-way delay: 71.912 ms

Loss rate: 0.00%

Run 7: Report of Indigo — Data Link



Run 8: Statistics of Indigo

Start at: 2017-09-19 06:42:19

End at: 2017-09-19 06:42:49

# Below is generated by plot.py at 2017-09-19 08:36:24

# Datalink statistics

-- Total of 3 flows:

Average throughput: 353.28 Mbit/s

95th percentile per-packet one-way delay: 62.955 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 185.20 Mbit/s

95th percentile per-packet one-way delay: 62.472 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 177.70 Mbit/s

95th percentile per-packet one-way delay: 63.387 ms

Loss rate: 0.00%

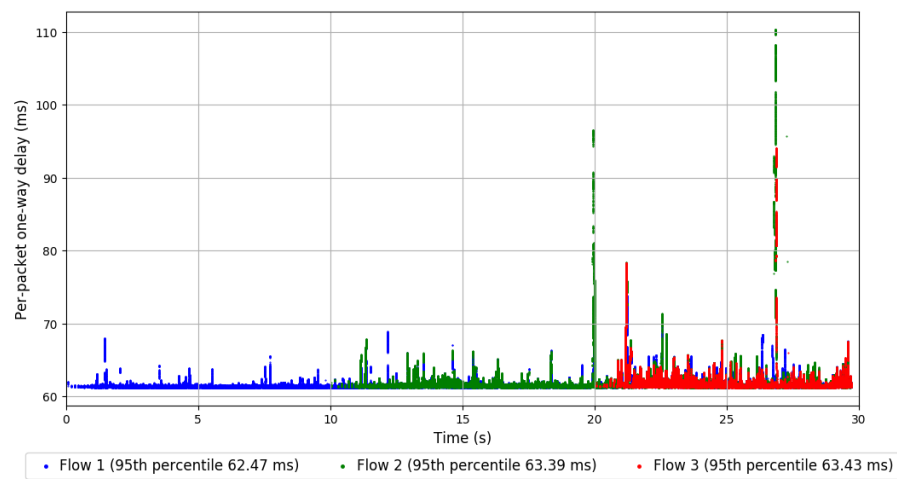
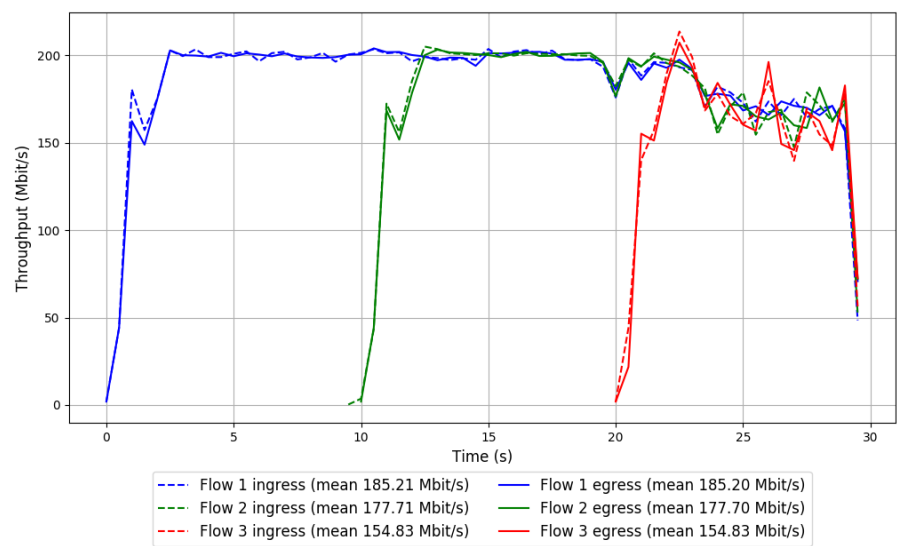
-- Flow 3:

Average throughput: 154.83 Mbit/s

95th percentile per-packet one-way delay: 63.434 ms

Loss rate: 0.00%

Run 8: Report of Indigo — Data Link



Run 9: Statistics of Indigo

Start at: 2017-09-19 06:51:51

End at: 2017-09-19 06:52:21

# Below is generated by plot.py at 2017-09-19 08:37:07

# Datalink statistics

-- Total of 3 flows:

Average throughput: 343.89 Mbit/s

95th percentile per-packet one-way delay: 64.791 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 179.29 Mbit/s

95th percentile per-packet one-way delay: 63.557 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 171.53 Mbit/s

95th percentile per-packet one-way delay: 65.450 ms

Loss rate: 0.00%

-- Flow 3:

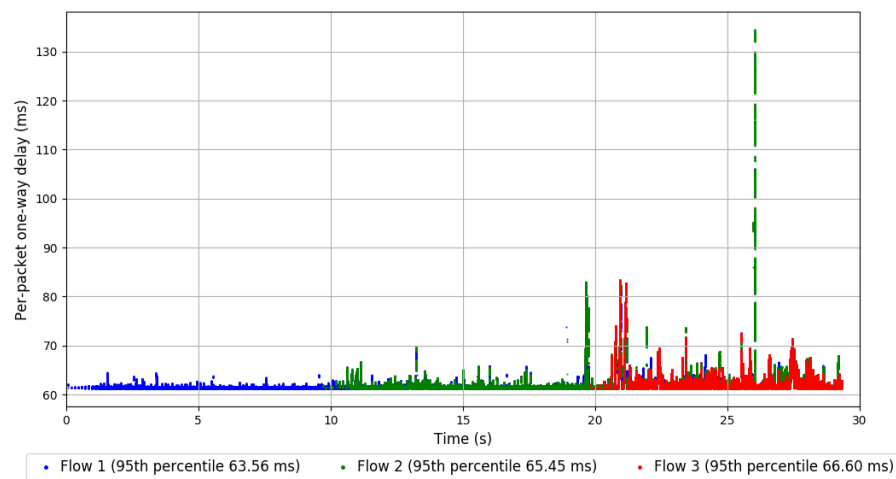
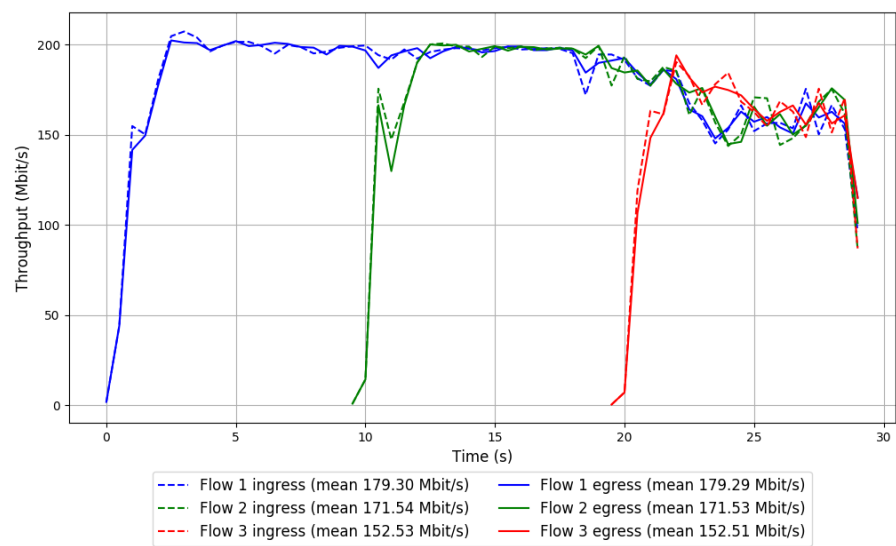
Average throughput: 152.51 Mbit/s

95th percentile per-packet one-way delay: 66.597 ms

Loss rate: 0.00%



Run 9: Report of Indigo — Data Link



Run 10: Statistics of Indigo

Start at: 2017-09-19 07:01:01

End at: 2017-09-19 07:01:31

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 333.30 Mbit/s

95th percentile per-packet one-way delay: 62.955 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 174.19 Mbit/s

95th percentile per-packet one-way delay: 62.547 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 164.38 Mbit/s

95th percentile per-packet one-way delay: 63.312 ms

Loss rate: 0.00%

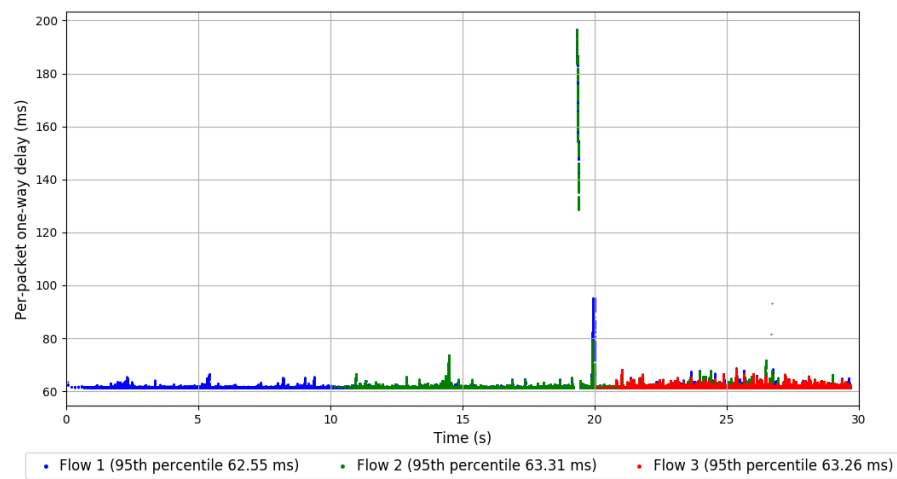
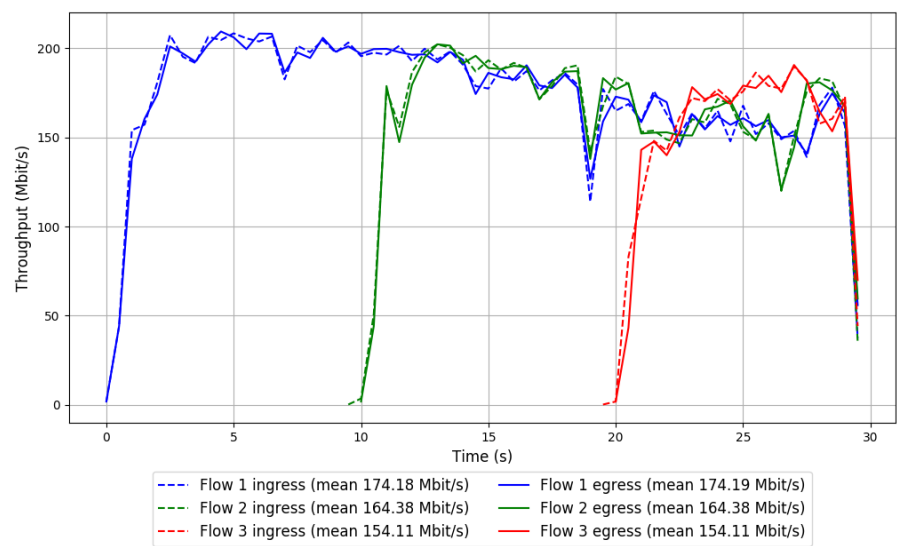
-- Flow 3:

Average throughput: 154.11 Mbit/s

95th percentile per-packet one-way delay: 63.263 ms

Loss rate: 0.00%

Run 10: Report of Indigo — Data Link

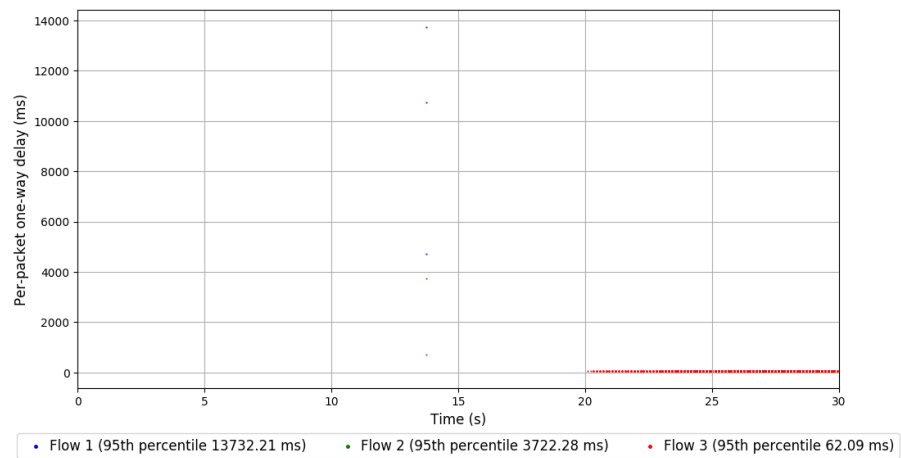
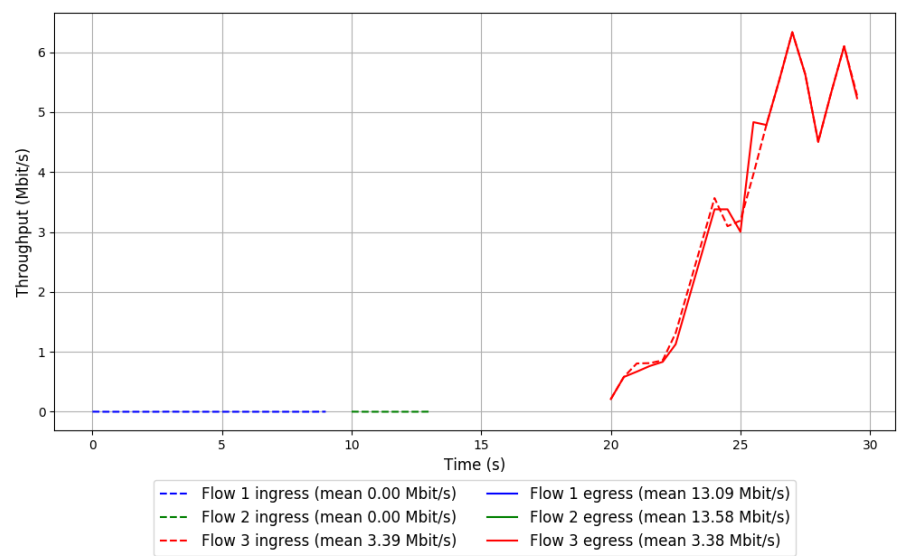


Run 1: Statistics of LEDBAT

Start at: 2017-09-19 05:35:21

End at: 2017-09-19 05:35:51

Run 1: Report of LEDBAT — Data Link



Run 2: Statistics of LEDBAT

Start at: 2017-09-19 05:44:32

End at: 2017-09-19 05:45:03

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 15.89 Mbit/s

95th percentile per-packet one-way delay: 62.141 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 4.38 Mbit/s

95th percentile per-packet one-way delay: 62.009 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 14.15 Mbit/s

95th percentile per-packet one-way delay: 62.226 ms

Loss rate: 0.00%

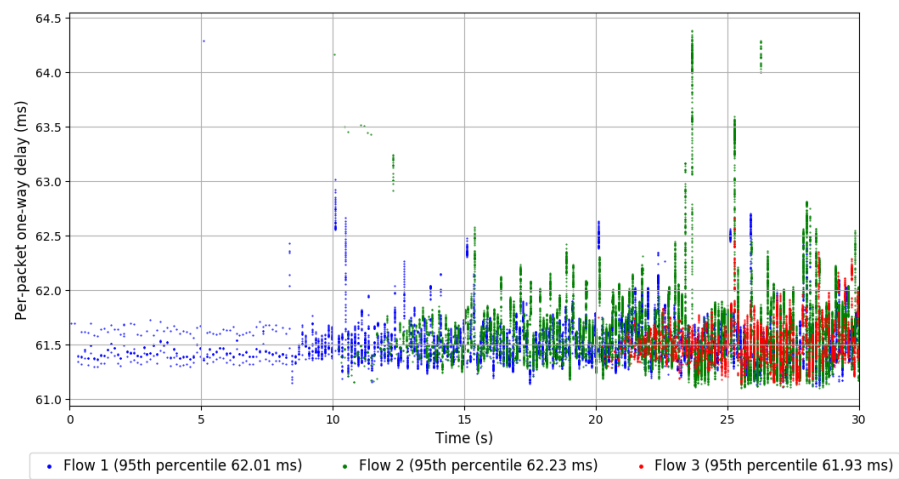
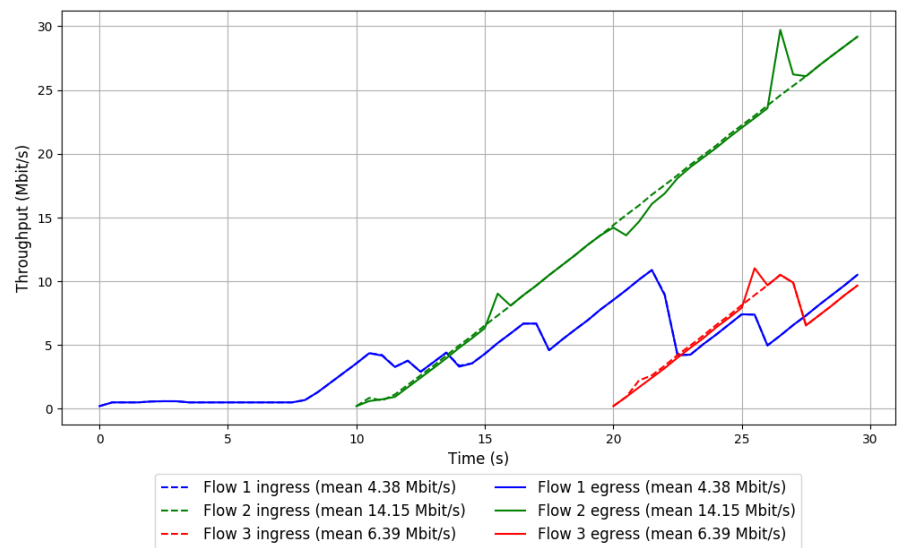
-- Flow 3:

Average throughput: 6.39 Mbit/s

95th percentile per-packet one-way delay: 61.928 ms

Loss rate: 0.00%

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2017-09-19 05:53:44

End at: 2017-09-19 05:54:14

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.77 Mbit/s

95th percentile per-packet one-way delay: 62.017 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 8.69 Mbit/s

95th percentile per-packet one-way delay: 62.098 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 5.84 Mbit/s

95th percentile per-packet one-way delay: 61.894 ms

Loss rate: 0.00%

-- Flow 3:

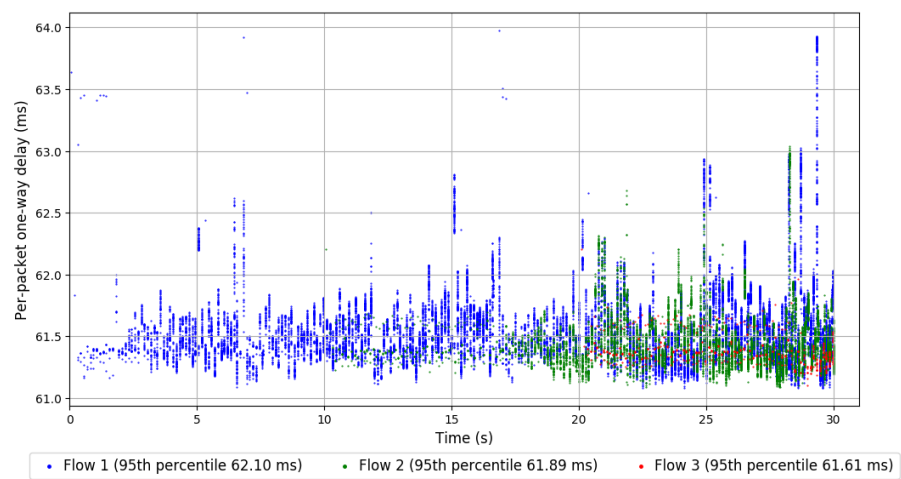
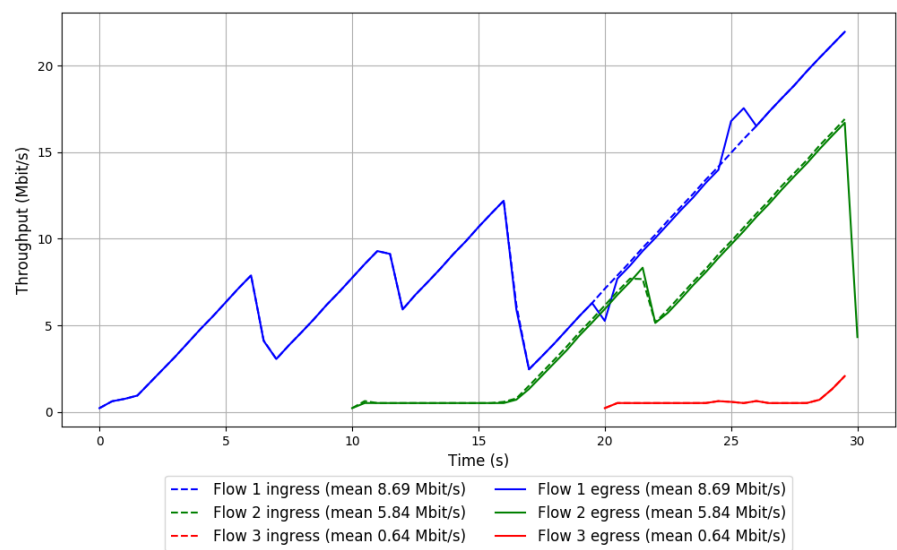
Average throughput: 0.64 Mbit/s

95th percentile per-packet one-way delay: 61.612 ms

Loss rate: 0.00%



Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2017-09-19 06:02:59

End at: 2017-09-19 06:03:29

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 16.14 Mbit/s

95th percentile per-packet one-way delay: 62.363 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 10.84 Mbit/s

95th percentile per-packet one-way delay: 62.309 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 5.03 Mbit/s

95th percentile per-packet one-way delay: 62.392 ms

Loss rate: 0.13%

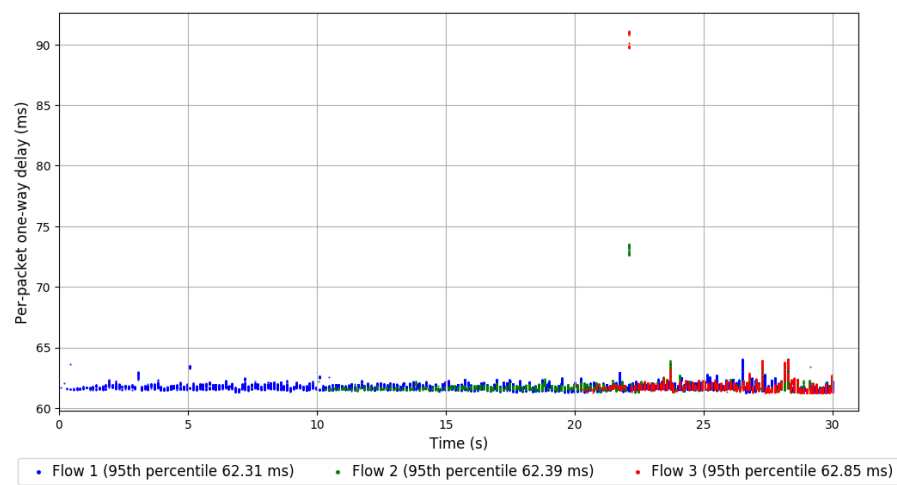
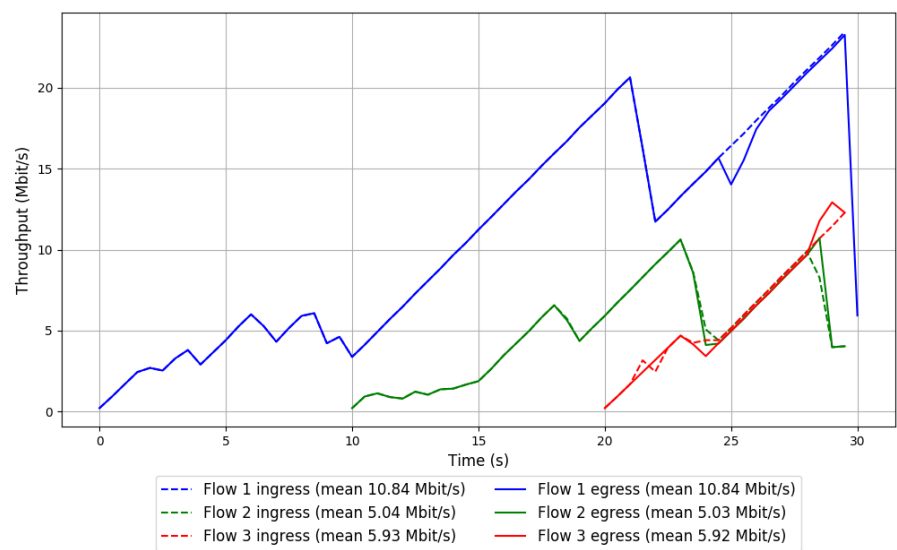
-- Flow 3:

Average throughput: 5.92 Mbit/s

95th percentile per-packet one-way delay: 62.853 ms

Loss rate: 0.08%

Run 4: Report of LEDBAT — Data Link

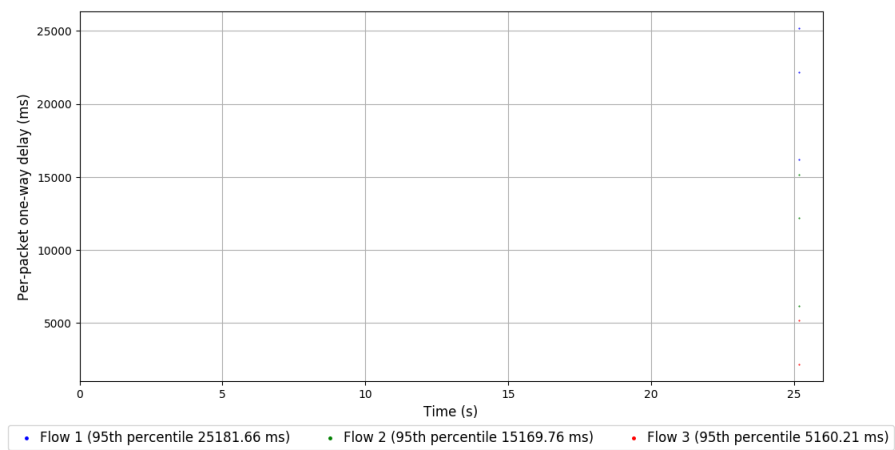
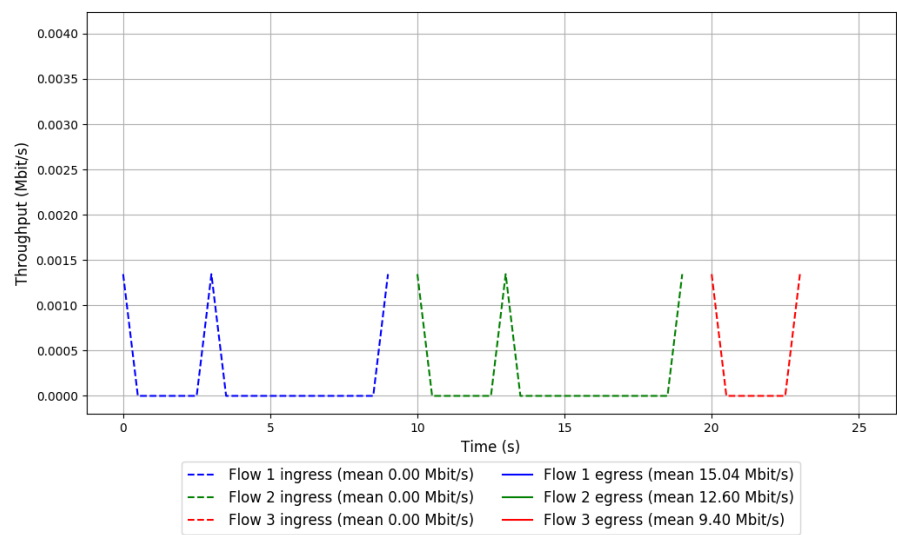


Run 5: Statistics of LEDBAT

Start at: 2017-09-19 06:12:14

End at: 2017-09-19 06:12:44

Run 5: Report of LEDBAT — Data Link

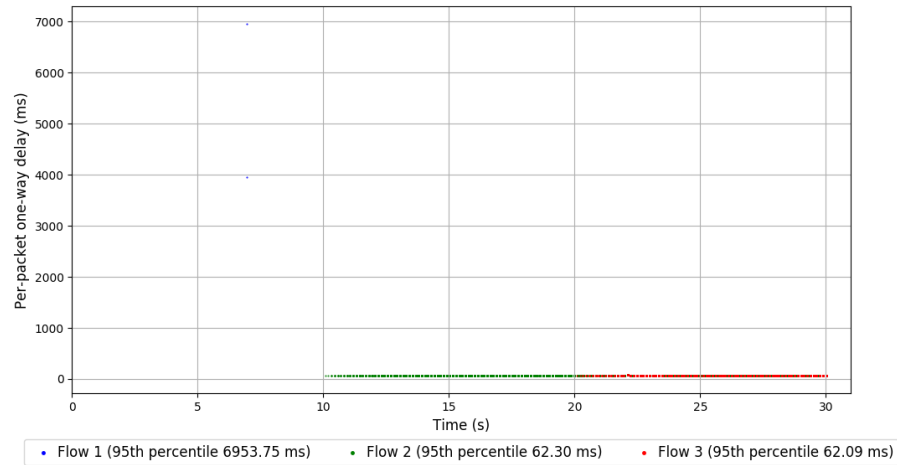
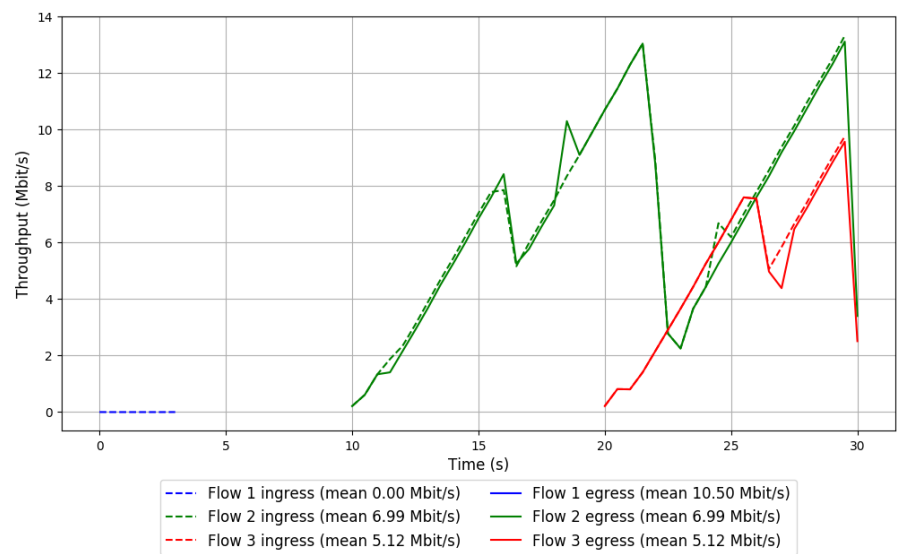


Run 6: Statistics of LEDBAT

Start at: 2017-09-19 06:21:29

End at: 2017-09-19 06:21:59

Run 6: Report of LEDBAT — Data Link



Run 7: Statistics of LEDBAT

Start at: 2017-09-19 06:30:33

End at: 2017-09-19 06:31:03

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 19.18 Mbit/s

95th percentile per-packet one-way delay: 62.568 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 9.30 Mbit/s

95th percentile per-packet one-way delay: 62.472 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 11.11 Mbit/s

95th percentile per-packet one-way delay: 62.844 ms

Loss rate: 0.00%

-- Flow 3:

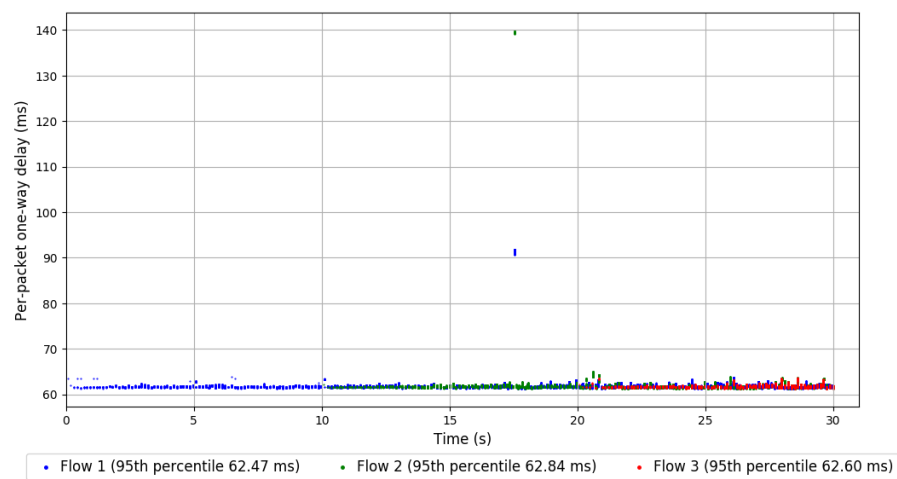
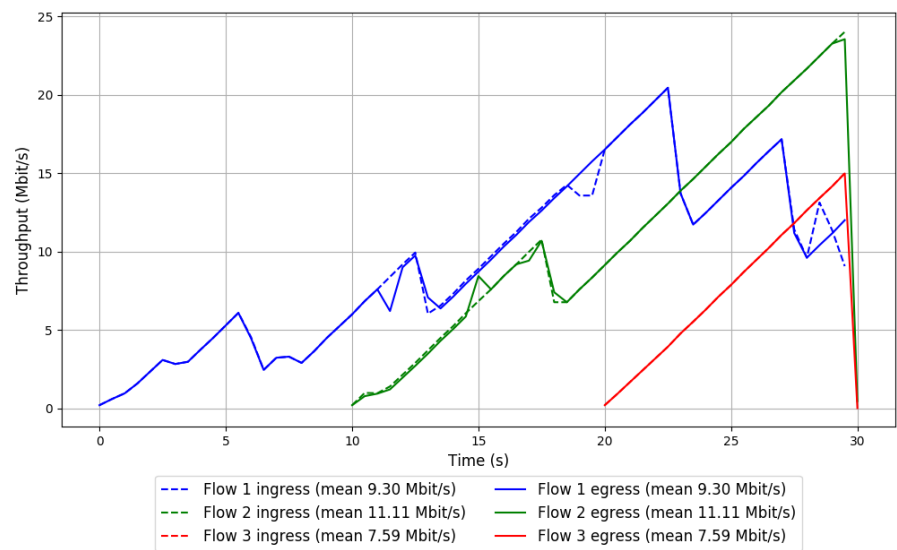
Average throughput: 7.59 Mbit/s

95th percentile per-packet one-way delay: 62.602 ms

Loss rate: 0.00%



Run 7: Report of LEDBAT — Data Link



Run 8: Statistics of LEDBAT

Start at: 2017-09-19 06:39:55

End at: 2017-09-19 06:40:25

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.45 Mbit/s

95th percentile per-packet one-way delay: 62.757 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.00 Mbit/s

95th percentile per-packet one-way delay: 2581.643 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 14.76 Mbit/s

95th percentile per-packet one-way delay: 62.697 ms

Loss rate: 0.00%

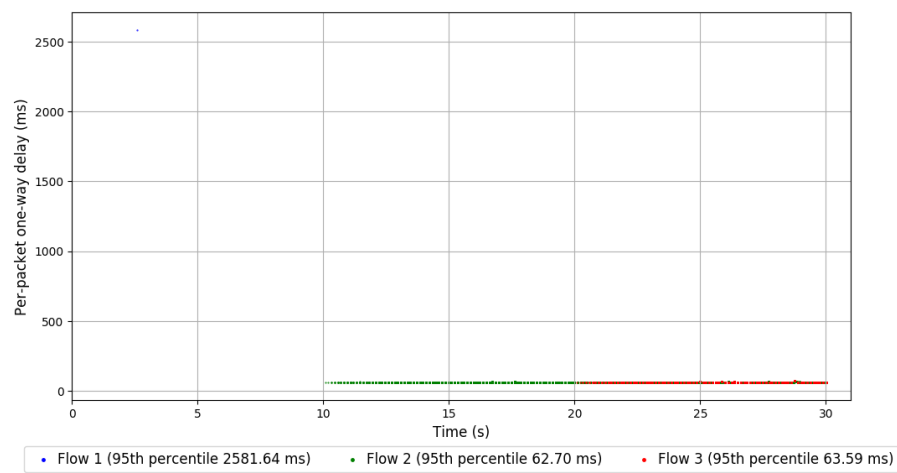
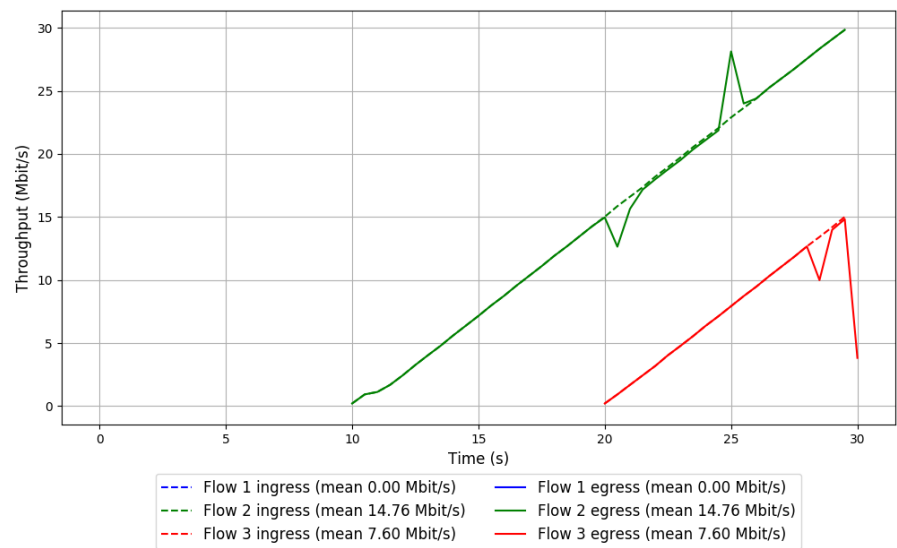
-- Flow 3:

Average throughput: 7.60 Mbit/s

95th percentile per-packet one-way delay: 63.592 ms

Loss rate: 0.00%

Run 8: Report of LEDBAT — Data Link



Run 9: Statistics of LEDBAT

Start at: 2017-09-19 06:49:29

End at: 2017-09-19 06:49:59

# Below is generated by plot.py at 2017-09-19 08:37:30

# Datalink statistics

-- Total of 3 flows:

Average throughput: 33.52 Mbit/s

95th percentile per-packet one-way delay: 62.437 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 22.13 Mbit/s

95th percentile per-packet one-way delay: 62.528 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 13.81 Mbit/s

95th percentile per-packet one-way delay: 62.328 ms

Loss rate: 0.00%

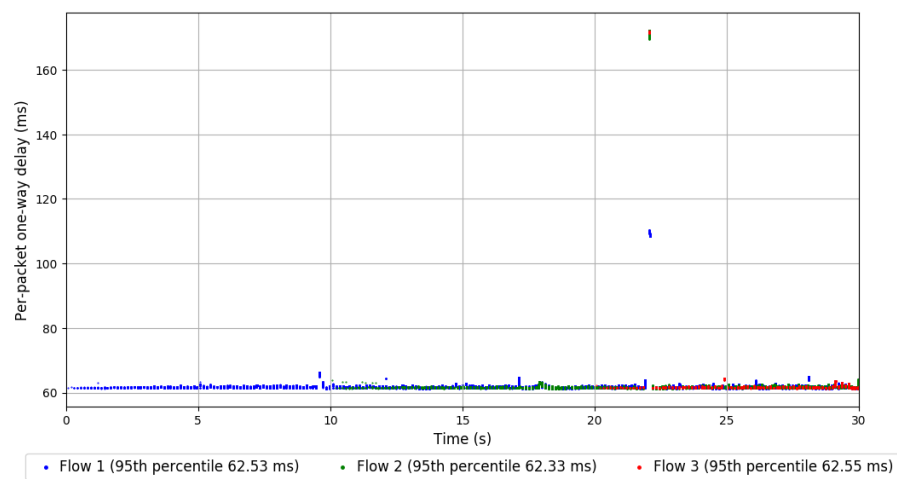
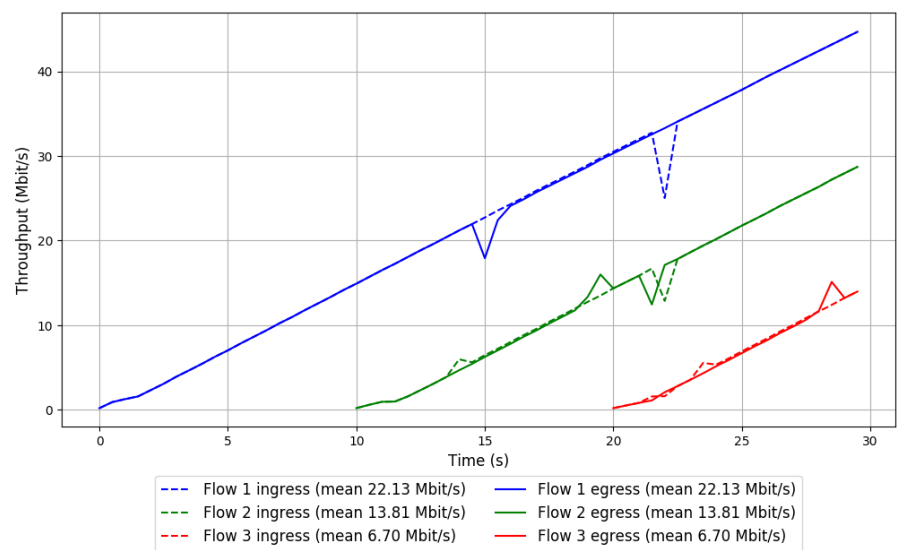
-- Flow 3:

Average throughput: 6.70 Mbit/s

95th percentile per-packet one-way delay: 62.554 ms

Loss rate: 0.00%

Run 9: Report of LEDBAT — Data Link

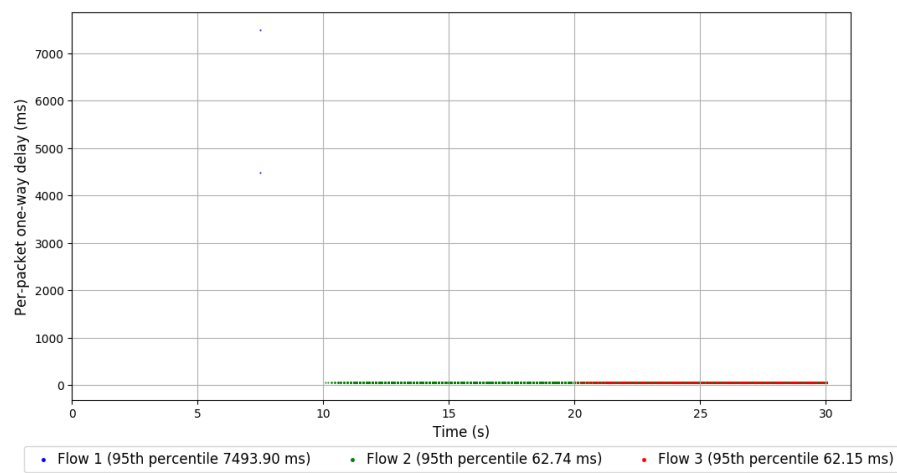
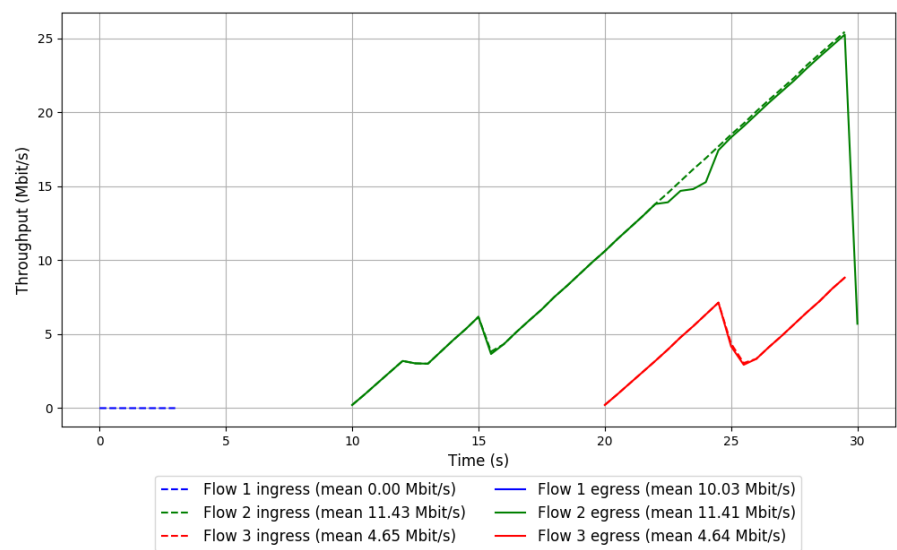


Run 10: Statistics of LEDBAT

Start at: 2017-09-19 06:58:44

End at: 2017-09-19 06:59:14

Run 10: Report of LEDBAT — Data Link



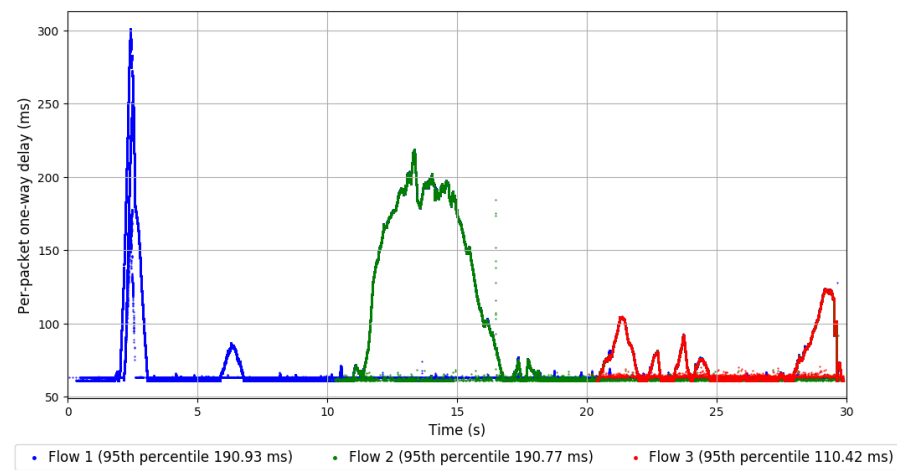
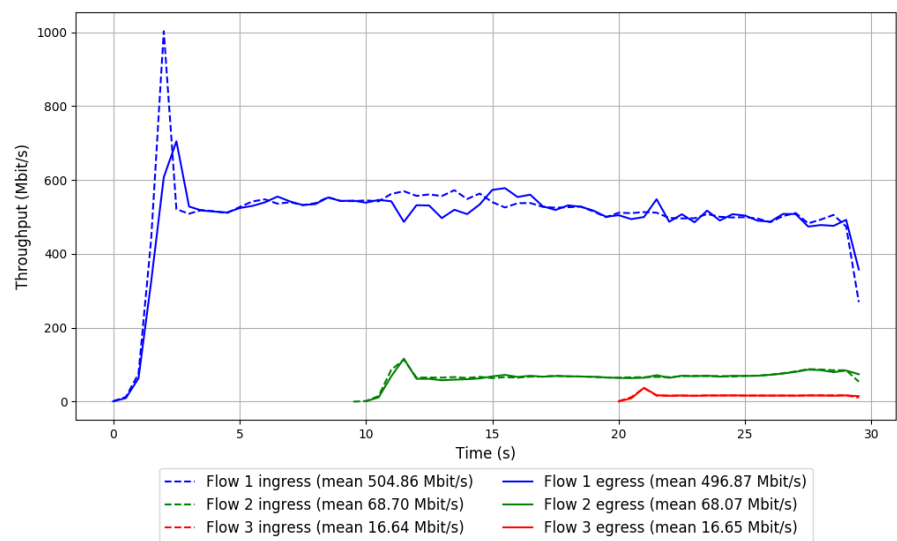
```
Run 1: Statistics of PCC

Start at: 2017-09-19 05:33:04
End at: 2017-09-19 05:33:34

# Below is generated by plot.py at 2017-09-19 08:43:20
# Datalink statistics
-- Total of 3 flows:
Average throughput: 547.52 Mbit/s
95th percentile per-packet one-way delay: 190.837 ms
Loss rate: 1.54%
-- Flow 1:
Average throughput: 496.87 Mbit/s
95th percentile per-packet one-way delay: 190.931 ms
Loss rate: 1.62%
-- Flow 2:
Average throughput: 68.07 Mbit/s
95th percentile per-packet one-way delay: 190.774 ms
Loss rate: 0.91%
-- Flow 3:
Average throughput: 16.65 Mbit/s
95th percentile per-packet one-way delay: 110.418 ms
Loss rate: 0.00%
```



Run 1: Report of PCC — Data Link



Run 2: Statistics of PCC

Start at: 2017-09-19 05:42:24

End at: 2017-09-19 05:42:54

# Below is generated by plot.py at 2017-09-19 08:43:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 560.53 Mbit/s

95th percentile per-packet one-way delay: 153.890 ms

Loss rate: 0.36%

-- Flow 1:

Average throughput: 546.44 Mbit/s

95th percentile per-packet one-way delay: 153.988 ms

Loss rate: 0.37%

-- Flow 2:

Average throughput: 4.44 Mbit/s

95th percentile per-packet one-way delay: 152.929 ms

Loss rate: 0.07%

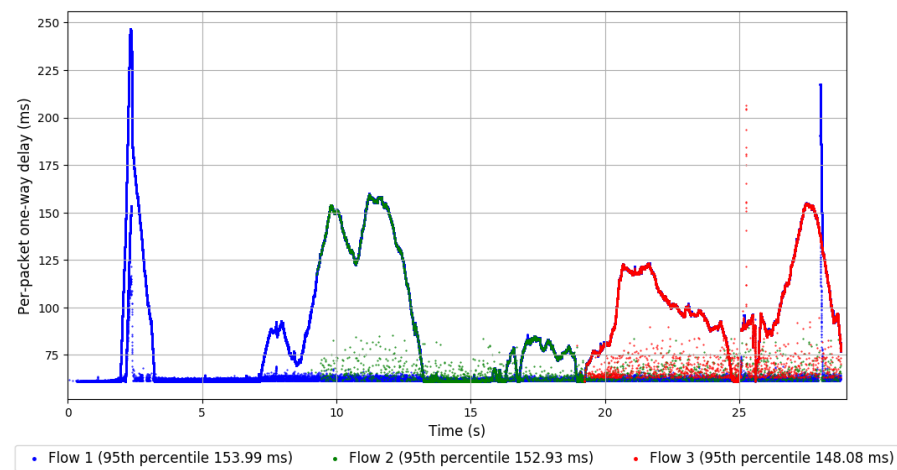
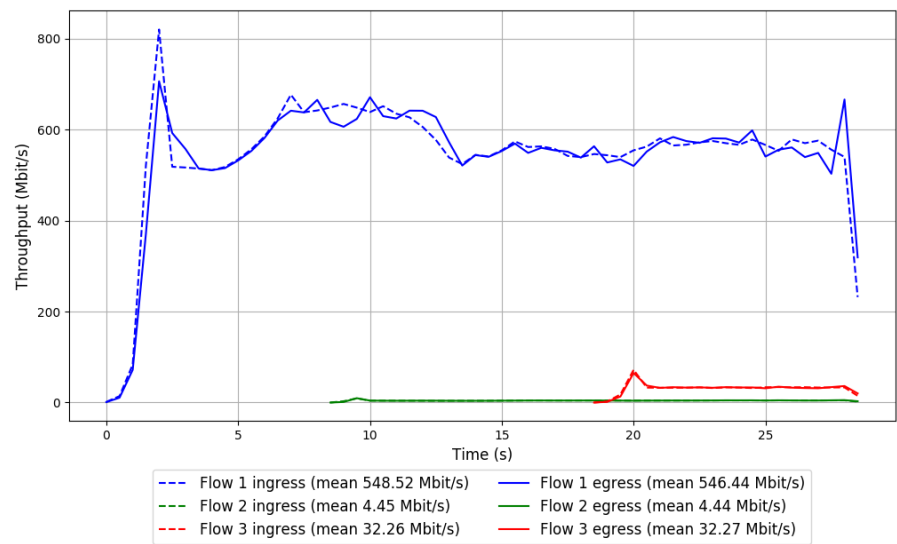
-- Flow 3:

Average throughput: 32.27 Mbit/s

95th percentile per-packet one-way delay: 148.081 ms

Loss rate: 0.13%

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2017-09-19 05:51:27

End at: 2017-09-19 05:51:57

# Below is generated by plot.py at 2017-09-19 08:43:27

# Datalink statistics

-- Total of 3 flows:

Average throughput: 573.95 Mbit/s

95th percentile per-packet one-way delay: 167.315 ms

Loss rate: 0.61%

-- Flow 1:

Average throughput: 527.71 Mbit/s

95th percentile per-packet one-way delay: 166.586 ms

Loss rate: 0.62%

-- Flow 2:

Average throughput: 45.71 Mbit/s

95th percentile per-packet one-way delay: 170.249 ms

Loss rate: 0.47%

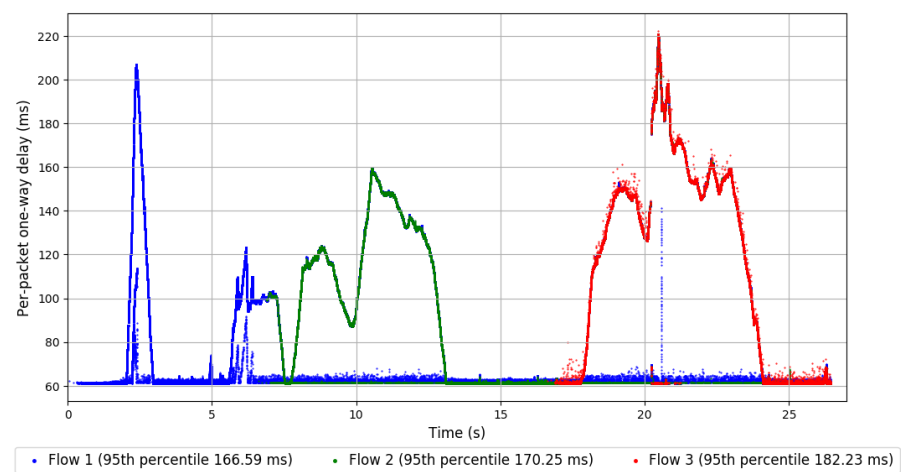
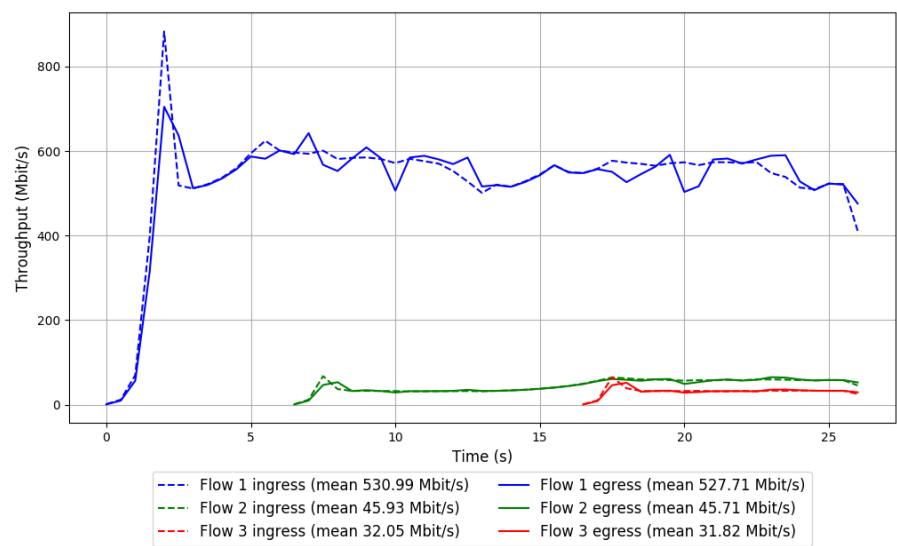
-- Flow 3:

Average throughput: 31.82 Mbit/s

95th percentile per-packet one-way delay: 182.234 ms

Loss rate: 0.73%

Run 3: Report of PCC — Data Link



Run 4: Statistics of PCC

Start at: 2017-09-19 06:00:41

End at: 2017-09-19 06:01:11

# Below is generated by plot.py at 2017-09-19 08:44:15

# Datalink statistics

-- Total of 3 flows:

Average throughput: 575.55 Mbit/s

95th percentile per-packet one-way delay: 176.968 ms

Loss rate: 0.98%

-- Flow 1:

Average throughput: 491.57 Mbit/s

95th percentile per-packet one-way delay: 176.775 ms

Loss rate: 0.98%

-- Flow 2:

Average throughput: 120.53 Mbit/s

95th percentile per-packet one-way delay: 178.129 ms

Loss rate: 1.05%

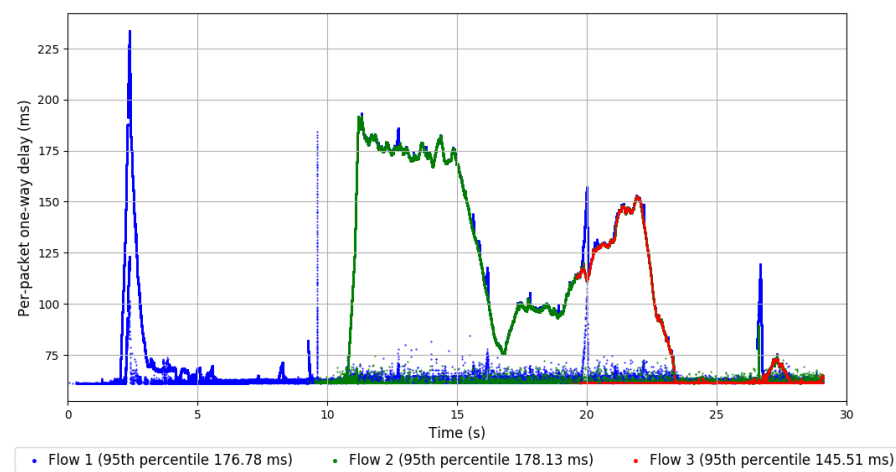
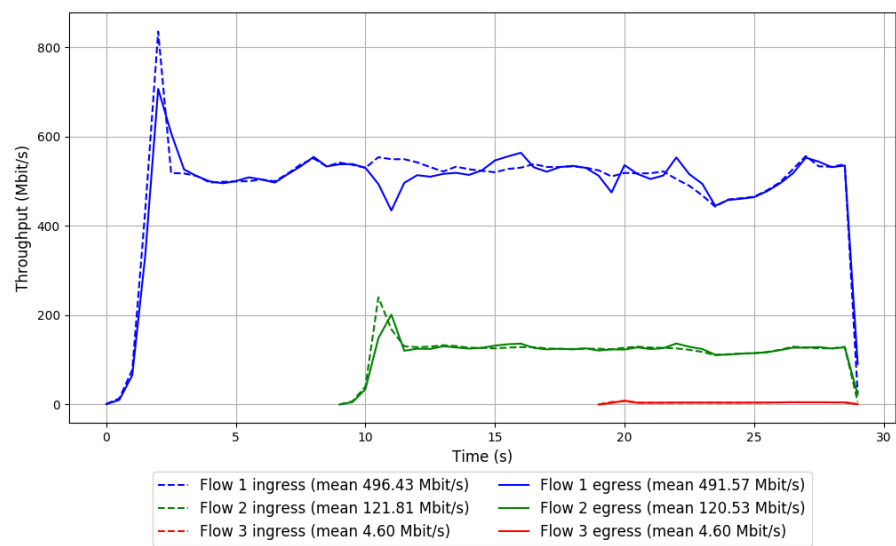
-- Flow 3:

Average throughput: 4.60 Mbit/s

95th percentile per-packet one-way delay: 145.507 ms

Loss rate: 0.03%

Run 4: Report of PCC — Data Link



Run 5: Statistics of PCC

Start at: 2017-09-19 06:09:55

End at: 2017-09-19 06:10:25

# Below is generated by plot.py at 2017-09-19 08:44:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 614.07 Mbit/s

95th percentile per-packet one-way delay: 173.588 ms

Loss rate: 1.01%

-- Flow 1:

Average throughput: 589.20 Mbit/s

95th percentile per-packet one-way delay: 173.500 ms

Loss rate: 0.98%

-- Flow 2:

Average throughput: 4.59 Mbit/s

95th percentile per-packet one-way delay: 171.480 ms

Loss rate: 0.99%

-- Flow 3:

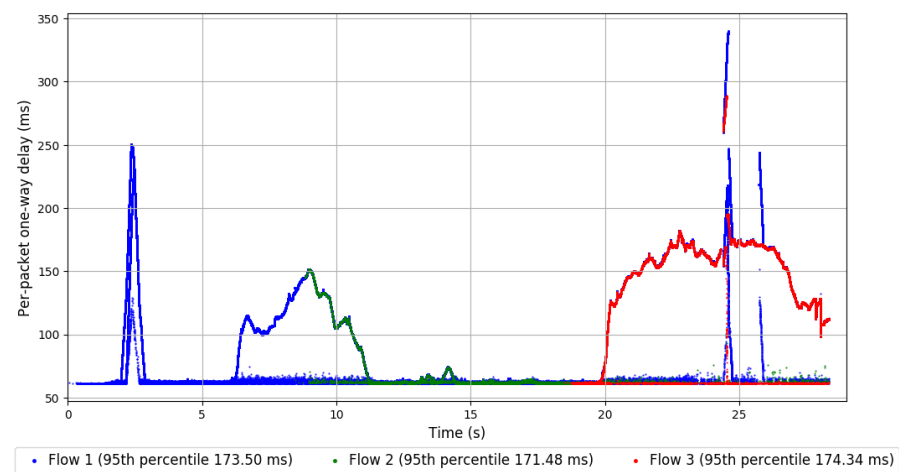
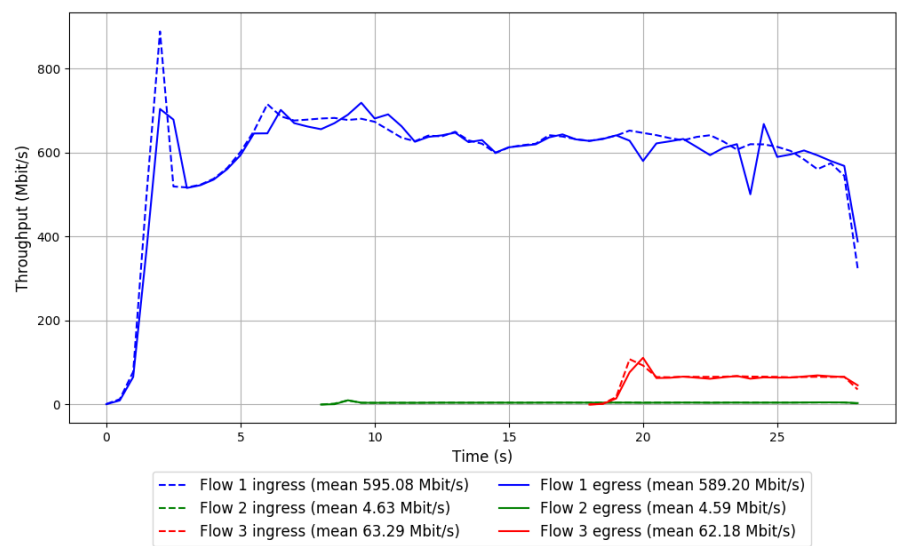
Average throughput: 62.18 Mbit/s

95th percentile per-packet one-way delay: 174.344 ms

Loss rate: 1.74%



Run 5: Report of PCC — Data Link



Run 6: Statistics of PCC

Start at: 2017-09-19 06:19:13

End at: 2017-09-19 06:19:43

# Below is generated by plot.py at 2017-09-19 08:46:18

# Datalink statistics

-- Total of 3 flows:

Average throughput: 576.60 Mbit/s

95th percentile per-packet one-way delay: 166.176 ms

Loss rate: 0.45%

-- Flow 1:

Average throughput: 494.45 Mbit/s

95th percentile per-packet one-way delay: 166.382 ms

Loss rate: 0.51%

-- Flow 2:

Average throughput: 118.63 Mbit/s

95th percentile per-packet one-way delay: 165.279 ms

Loss rate: 0.13%

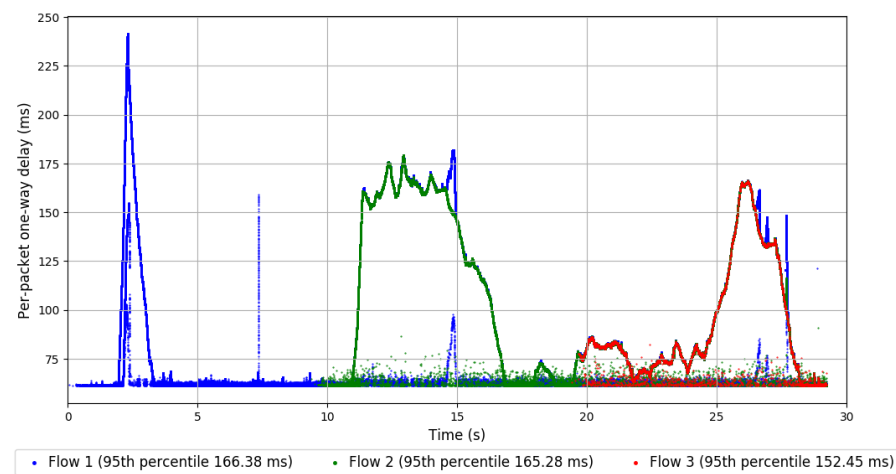
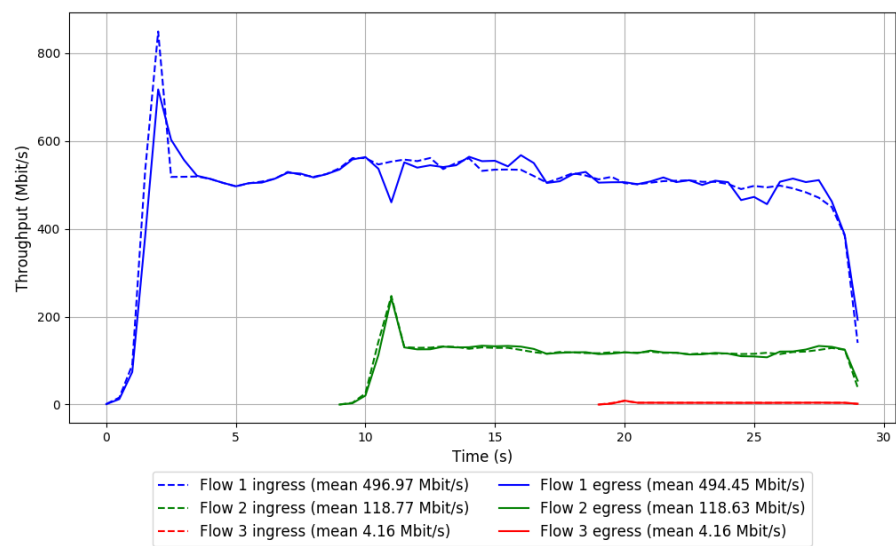
-- Flow 3:

Average throughput: 4.16 Mbit/s

95th percentile per-packet one-way delay: 152.448 ms

Loss rate: 0.00%

Run 6: Report of PCC — Data Link



Run 7: Statistics of PCC

Start at: 2017-09-19 06:28:23

End at: 2017-09-19 06:28:53

# Below is generated by plot.py at 2017-09-19 08:47:18

# Datalink statistics

-- Total of 3 flows:

Average throughput: 578.78 Mbit/s

95th percentile per-packet one-way delay: 179.258 ms

Loss rate: 0.85%

-- Flow 1:

Average throughput: 536.61 Mbit/s

95th percentile per-packet one-way delay: 178.953 ms

Loss rate: 0.81%

-- Flow 2:

Average throughput: 32.45 Mbit/s

95th percentile per-packet one-way delay: 179.644 ms

Loss rate: 0.84%

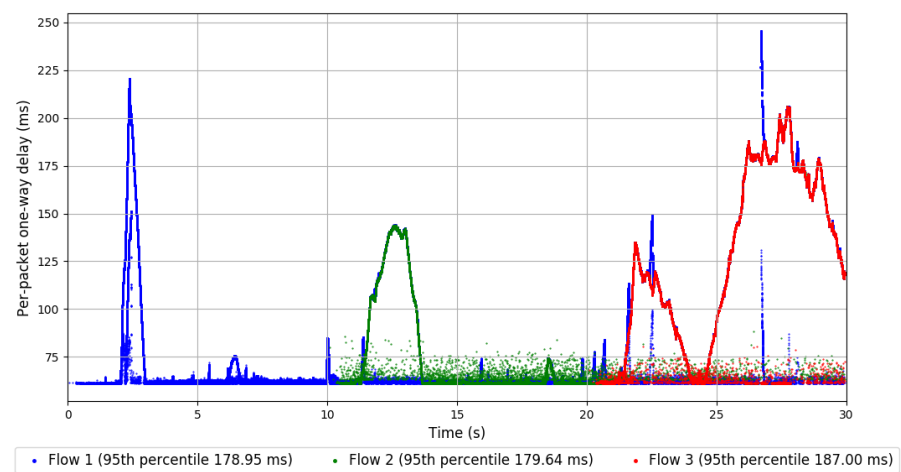
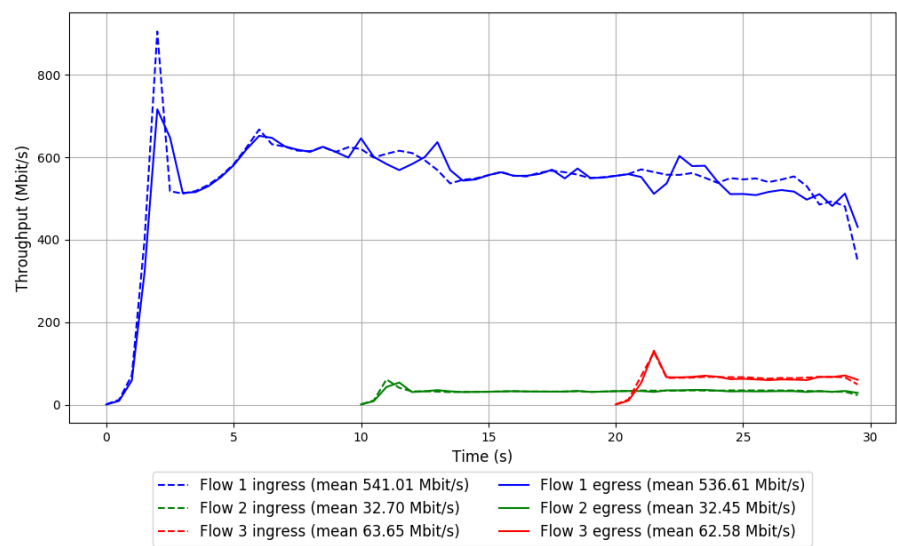
-- Flow 3:

Average throughput: 62.58 Mbit/s

95th percentile per-packet one-way delay: 187.000 ms

Loss rate: 1.74%

Run 7: Report of PCC — Data Link



Run 8: Statistics of PCC

Start at: 2017-09-19 06:37:35

End at: 2017-09-19 06:38:05

# Below is generated by plot.py at 2017-09-19 08:47:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 585.53 Mbit/s

95th percentile per-packet one-way delay: 180.501 ms

Loss rate: 1.09%

-- Flow 1:

Average throughput: 540.83 Mbit/s

95th percentile per-packet one-way delay: 180.503 ms

Loss rate: 1.10%

-- Flow 2:

Average throughput: 58.95 Mbit/s

95th percentile per-packet one-way delay: 180.615 ms

Loss rate: 1.04%

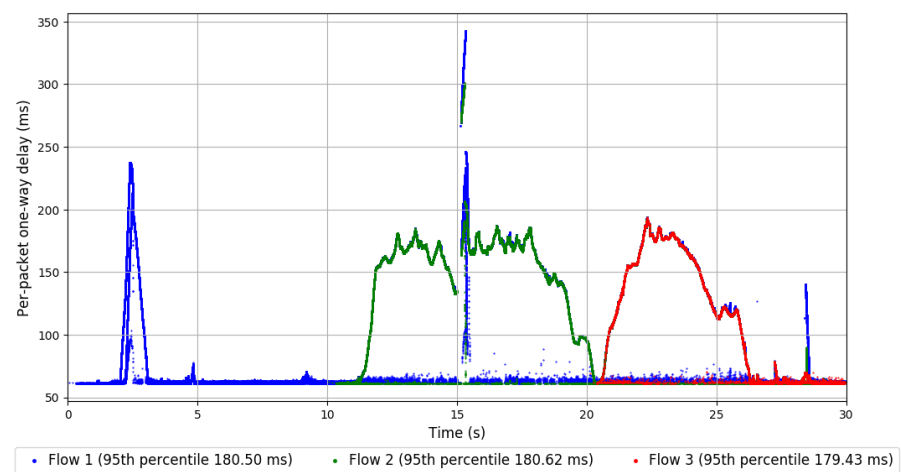
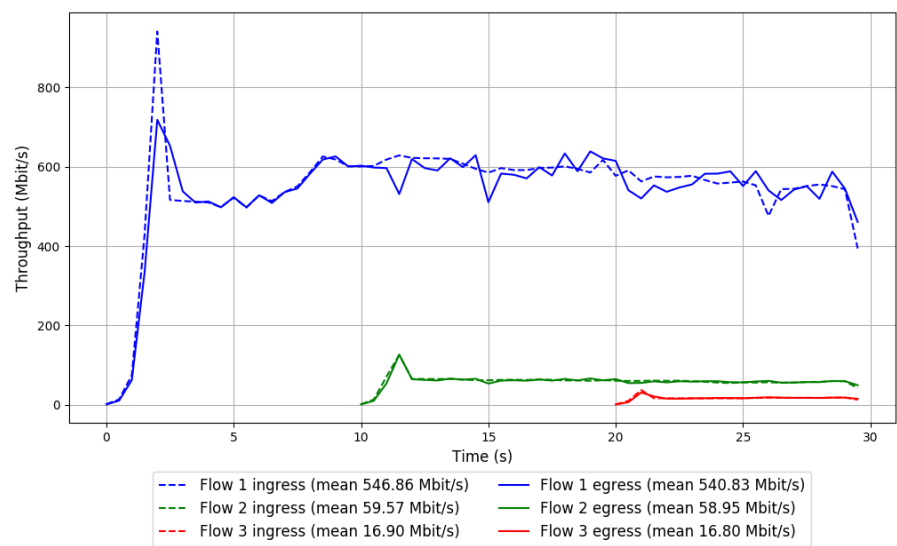
-- Flow 3:

Average throughput: 16.80 Mbit/s

95th percentile per-packet one-way delay: 179.426 ms

Loss rate: 0.64%

Run 8: Report of PCC — Data Link



Run 9: Statistics of PCC

Start at: 2017-09-19 06:47:07

End at: 2017-09-19 06:47:37

# Below is generated by plot.py at 2017-09-19 08:53:10

# Datalink statistics

-- Total of 3 flows:

Average throughput: 596.51 Mbit/s

95th percentile per-packet one-way delay: 164.226 ms

Loss rate: 0.74%

-- Flow 1:

Average throughput: 579.59 Mbit/s

95th percentile per-packet one-way delay: 164.382 ms

Loss rate: 0.76%

-- Flow 2:

Average throughput: 17.28 Mbit/s

95th percentile per-packet one-way delay: 162.070 ms

Loss rate: 0.21%

-- Flow 3:

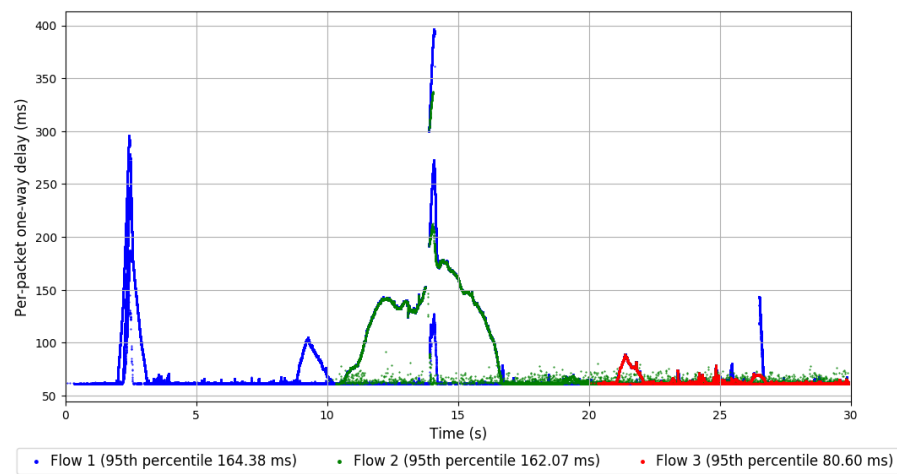
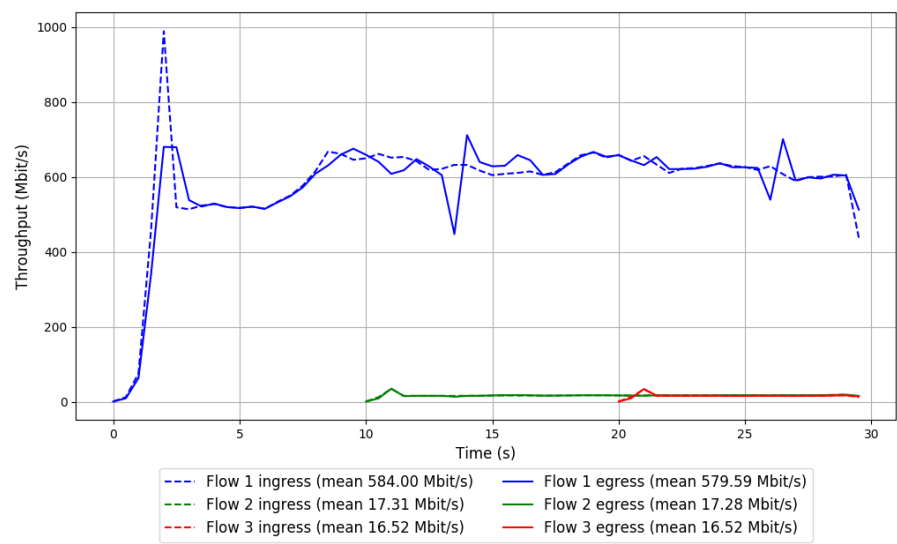
Average throughput: 16.52 Mbit/s

95th percentile per-packet one-way delay: 80.604 ms

Loss rate: 0.00%



Run 9: Report of PCC — Data Link



Run 10: Statistics of PCC

Start at: 2017-09-19 06:56:29

End at: 2017-09-19 06:56:59

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 591.32 Mbit/s

95th percentile per-packet one-way delay: 191.860 ms

Loss rate: 2.21%

-- Flow 1:

Average throughput: 570.46 Mbit/s

95th percentile per-packet one-way delay: 191.781 ms

Loss rate: 2.20%

-- Flow 2:

Average throughput: 30.52 Mbit/s

95th percentile per-packet one-way delay: 193.639 ms

Loss rate: 2.51%

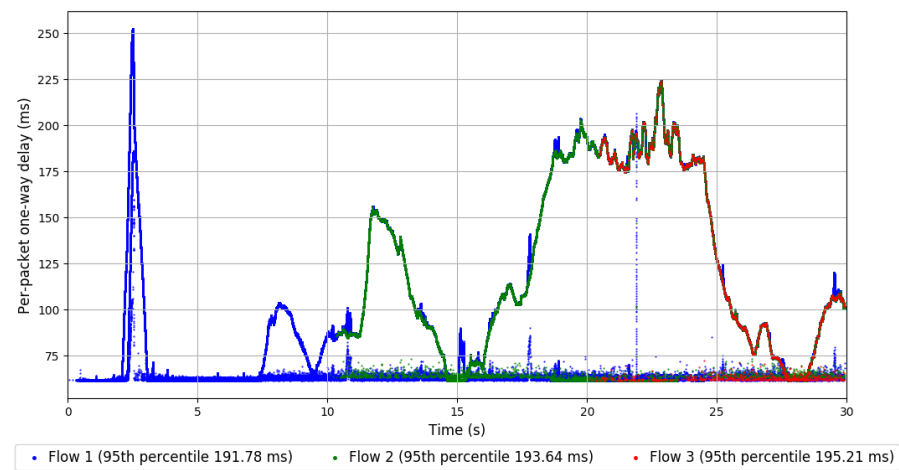
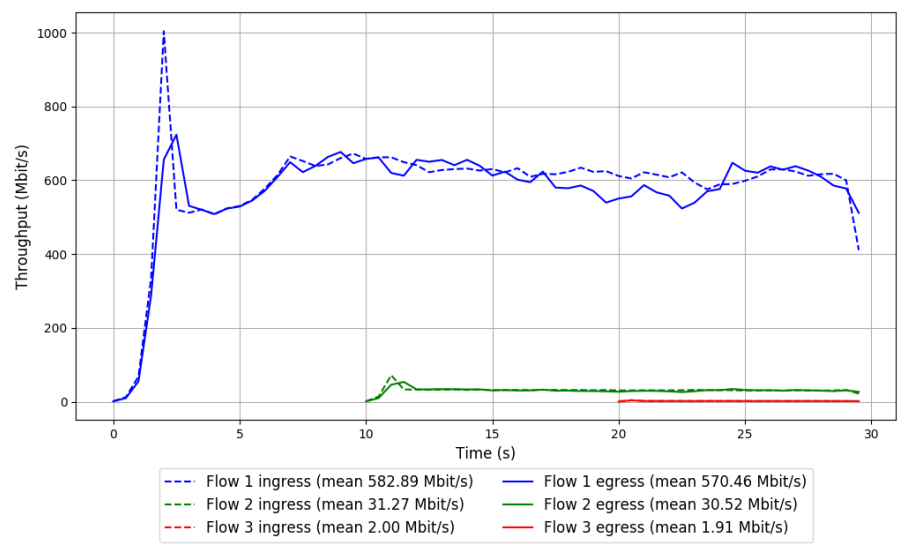
-- Flow 3:

Average throughput: 1.91 Mbit/s

95th percentile per-packet one-way delay: 195.213 ms

Loss rate: 4.76%

Run 10: Report of PCC — Data Link

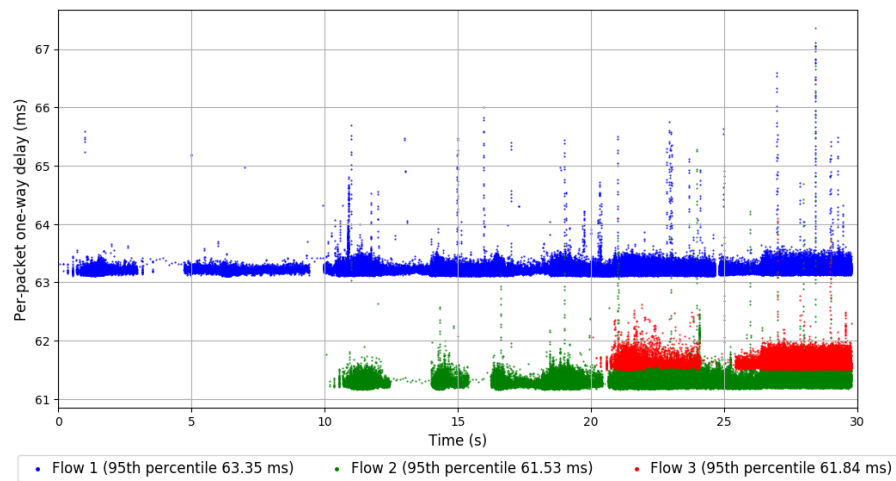
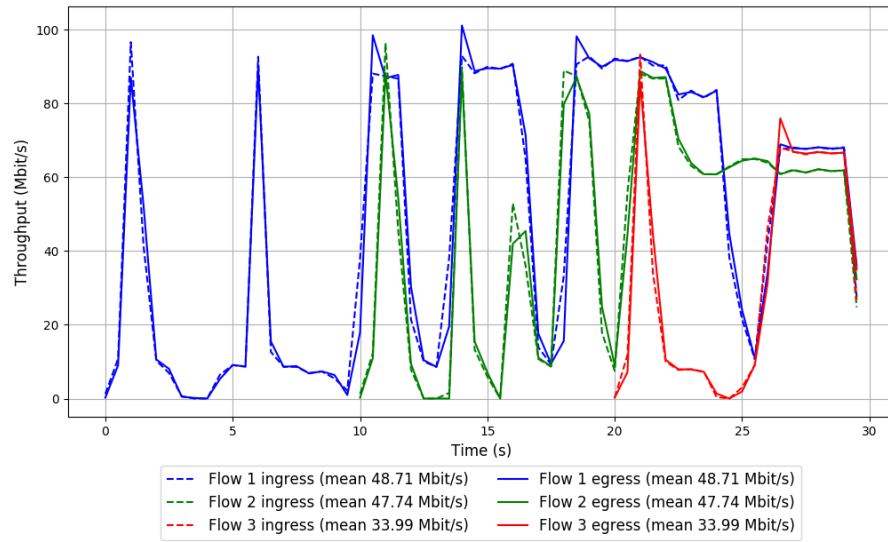


```
Run 1: Statistics of QUIC Cubic

Start at: 2017-09-19 05:36:52
End at: 2017-09-19 05:37:22

# Below is generated by plot.py at 2017-09-19 08:53:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 91.46 Mbit/s
95th percentile per-packet one-way delay: 63.308 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 48.71 Mbit/s
95th percentile per-packet one-way delay: 63.350 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 47.74 Mbit/s
95th percentile per-packet one-way delay: 61.528 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 33.99 Mbit/s
95th percentile per-packet one-way delay: 61.837 ms
Loss rate: 0.00%
```

# Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-09-19 05:46:04

End at: 2017-09-19 05:46:34

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 73.88 Mbit/s

95th percentile per-packet one-way delay: 63.483 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 42.63 Mbit/s

95th percentile per-packet one-way delay: 63.509 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 31.66 Mbit/s

95th percentile per-packet one-way delay: 61.595 ms

Loss rate: 0.00%

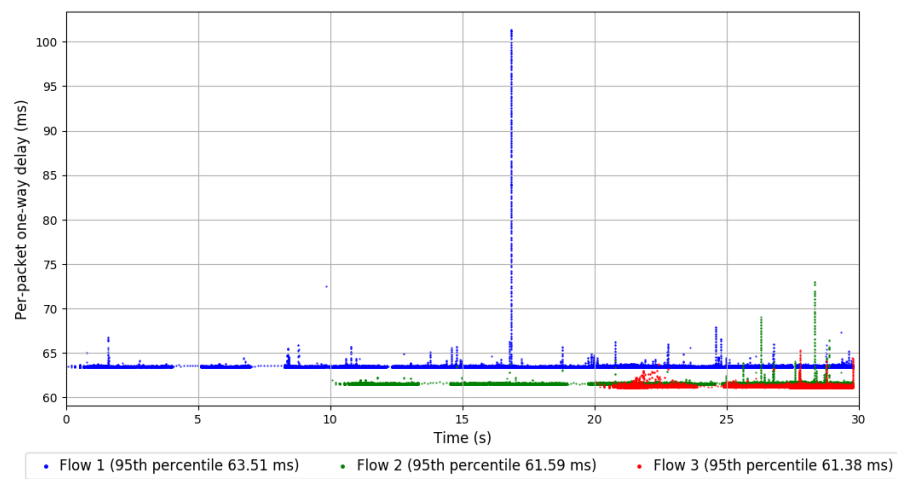
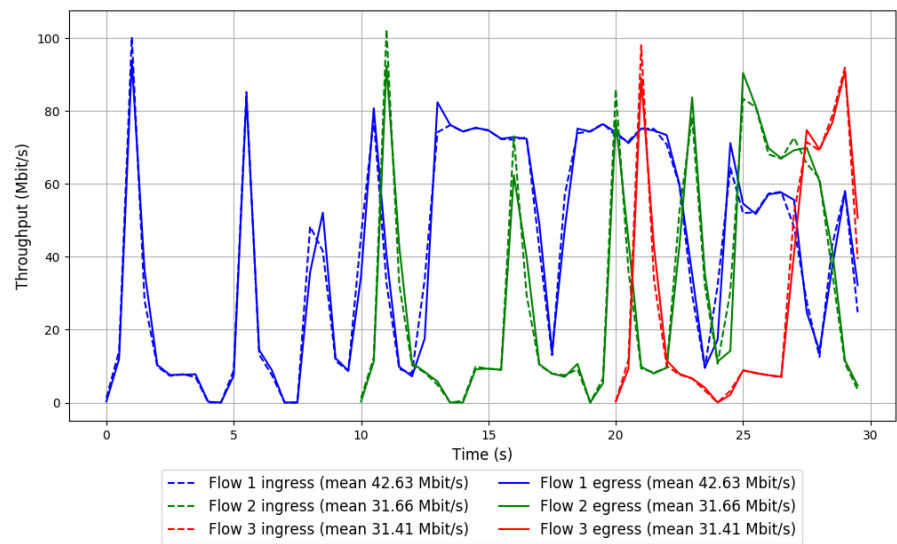
-- Flow 3:

Average throughput: 31.41 Mbit/s

95th percentile per-packet one-way delay: 61.385 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-09-19 05:55:17

End at: 2017-09-19 05:55:47

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 83.45 Mbit/s

95th percentile per-packet one-way delay: 63.506 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 48.92 Mbit/s

95th percentile per-packet one-way delay: 61.606 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 38.15 Mbit/s

95th percentile per-packet one-way delay: 63.569 ms

Loss rate: 0.00%

-- Flow 3:

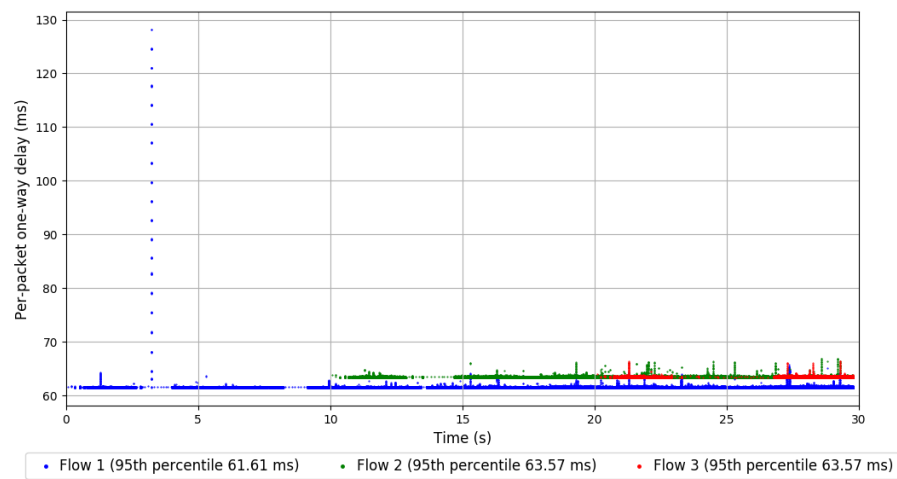
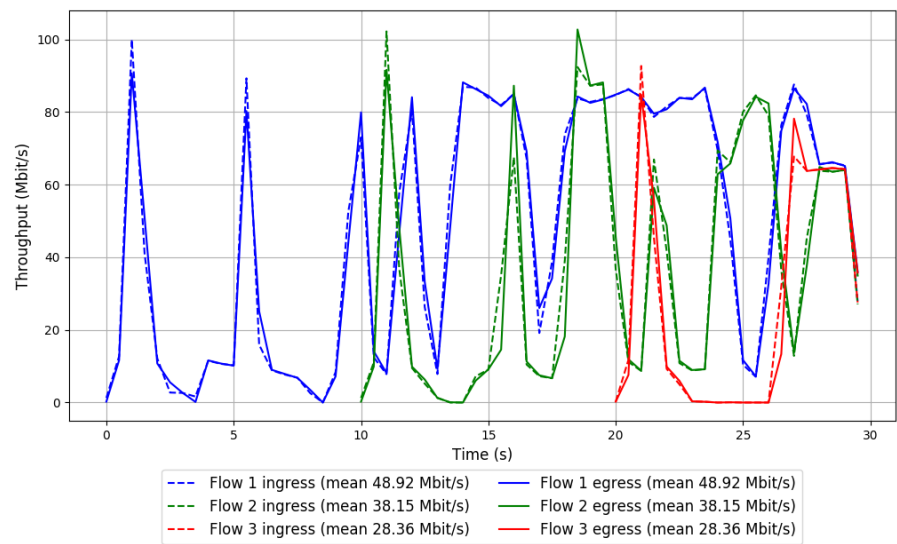
Average throughput: 28.36 Mbit/s

95th percentile per-packet one-way delay: 63.572 ms

Loss rate: 0.00%



Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2017-09-19 06:04:26

End at: 2017-09-19 06:04:56

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 85.85 Mbit/s

95th percentile per-packet one-way delay: 63.399 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 50.23 Mbit/s

95th percentile per-packet one-way delay: 61.511 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 43.69 Mbit/s

95th percentile per-packet one-way delay: 61.689 ms

Loss rate: 0.00%

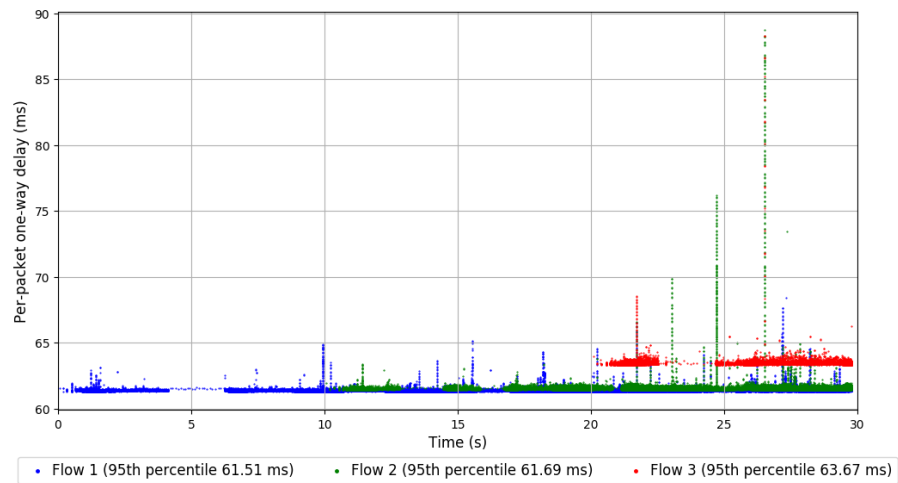
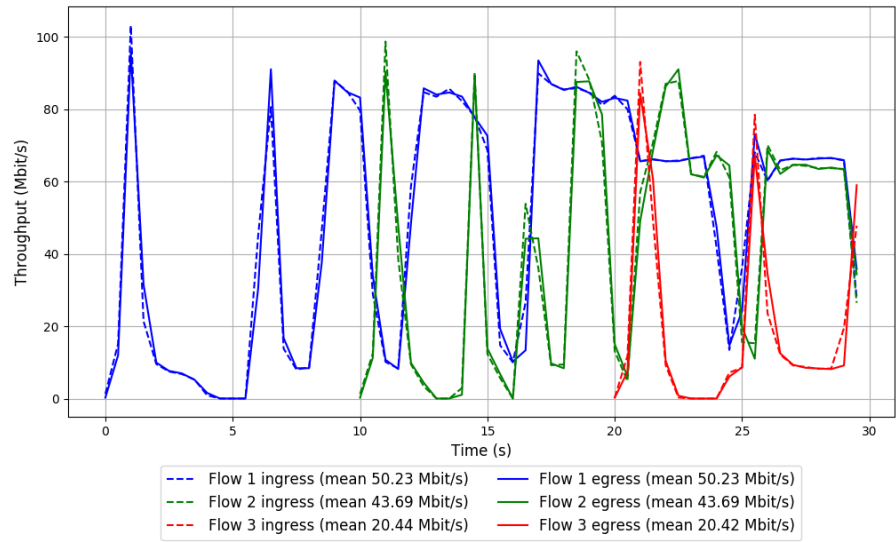
-- Flow 3:

Average throughput: 20.42 Mbit/s

95th percentile per-packet one-way delay: 63.671 ms

Loss rate: 0.07%

#### Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2017-09-19 06:13:48

End at: 2017-09-19 06:14:18

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 77.87 Mbit/s

95th percentile per-packet one-way delay: 61.592 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 43.14 Mbit/s

95th percentile per-packet one-way delay: 61.528 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 41.75 Mbit/s

95th percentile per-packet one-way delay: 61.639 ms

Loss rate: 0.00%

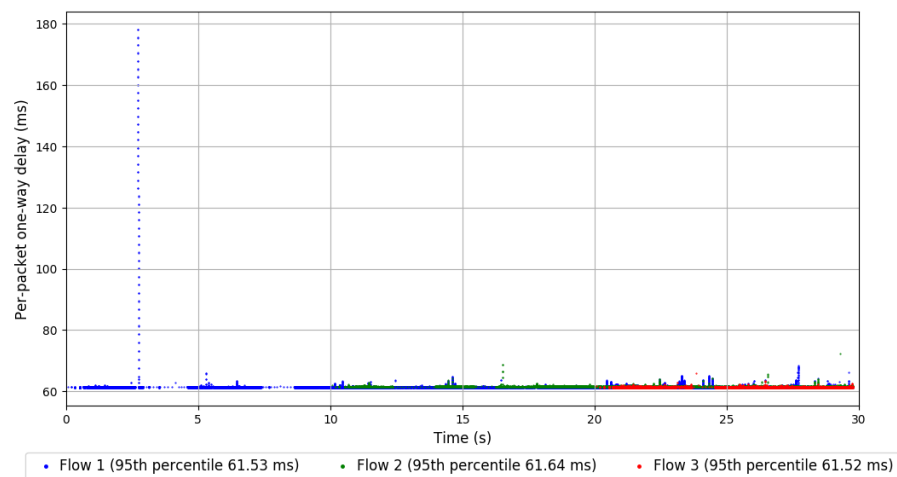
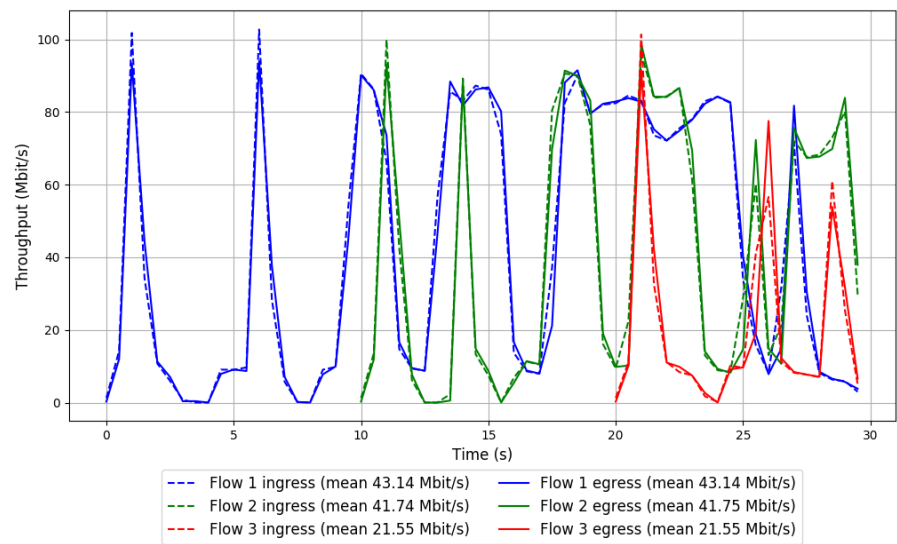
-- Flow 3:

Average throughput: 21.55 Mbit/s

95th percentile per-packet one-way delay: 61.515 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link



Run 6: Statistics of QUIC Cubic

Start at: 2017-09-19 06:22:57

End at: 2017-09-19 06:23:27

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 91.23 Mbit/s

95th percentile per-packet one-way delay: 63.479 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 54.28 Mbit/s

95th percentile per-packet one-way delay: 61.589 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.10 Mbit/s

95th percentile per-packet one-way delay: 63.552 ms

Loss rate: 0.00%

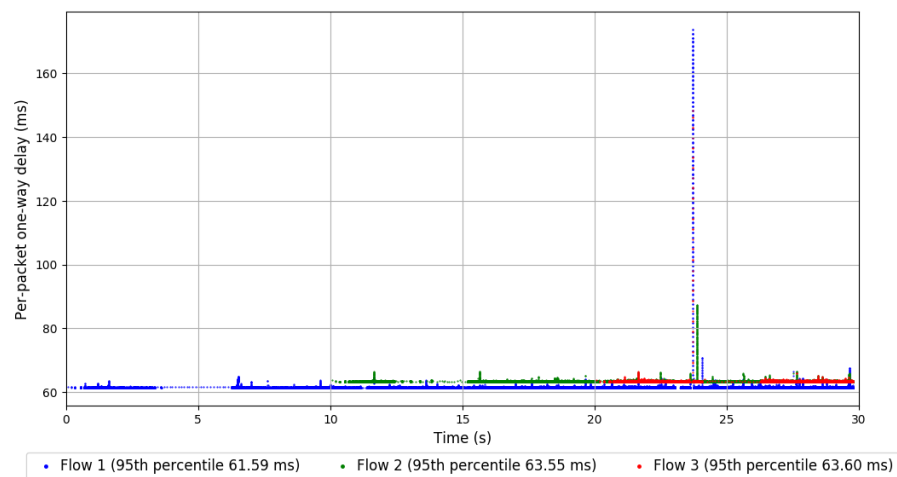
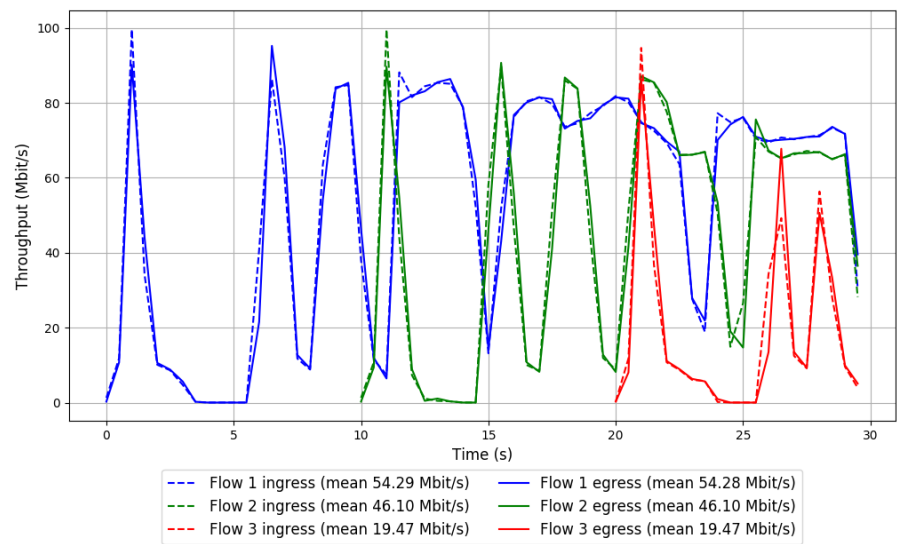
-- Flow 3:

Average throughput: 19.47 Mbit/s

95th percentile per-packet one-way delay: 63.597 ms

Loss rate: 0.00%

Run 6: Report of QUIC Cubic — Data Link



Run 7: Statistics of QUIC Cubic

Start at: 2017-09-19 06:32:10

End at: 2017-09-19 06:32:40

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 72.50 Mbit/s

95th percentile per-packet one-way delay: 63.474 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 43.41 Mbit/s

95th percentile per-packet one-way delay: 63.523 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 31.37 Mbit/s

95th percentile per-packet one-way delay: 61.492 ms

Loss rate: 0.00%

-- Flow 3:

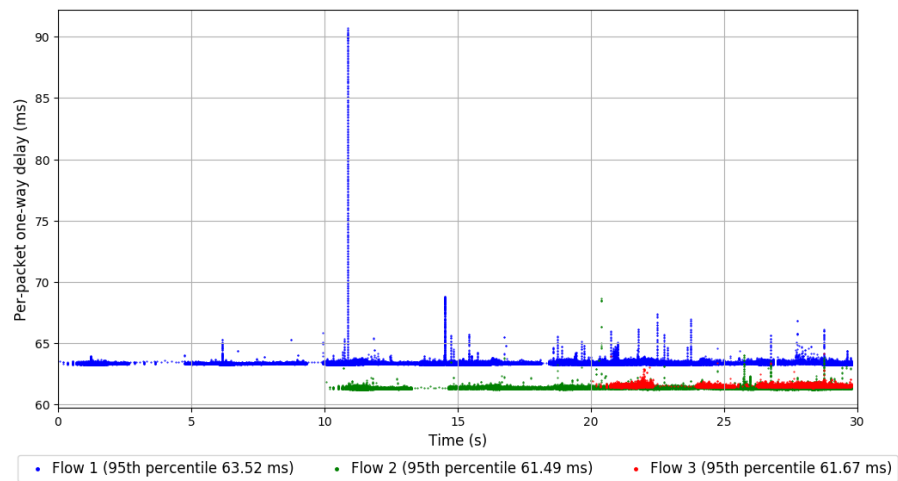
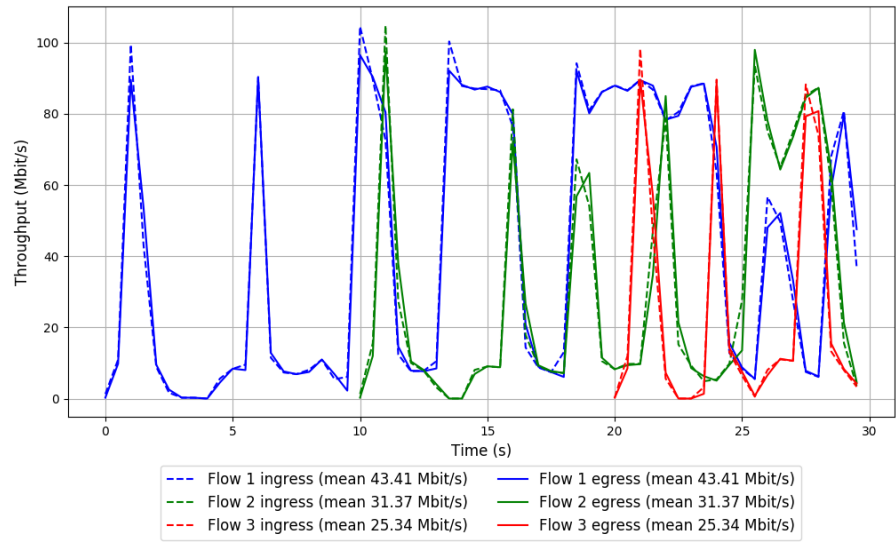
Average throughput: 25.34 Mbit/s

95th percentile per-packet one-way delay: 61.666 ms

Loss rate: 0.00%



## Run 7: Report of QUIC Cubic — Data Link



Run 8: Statistics of QUIC Cubic

Start at: 2017-09-19 06:41:33

End at: 2017-09-19 06:42:03

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 86.70 Mbit/s

95th percentile per-packet one-way delay: 61.479 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 55.35 Mbit/s

95th percentile per-packet one-way delay: 61.254 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 34.88 Mbit/s

95th percentile per-packet one-way delay: 61.624 ms

Loss rate: 0.00%

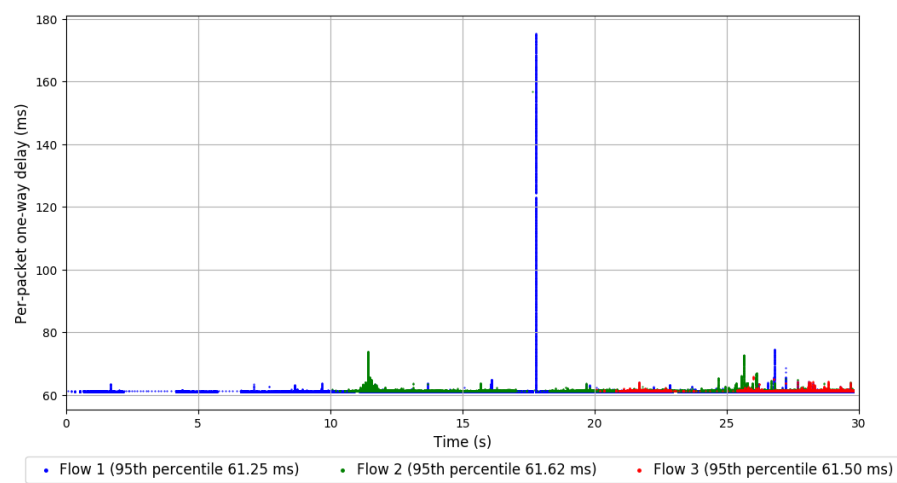
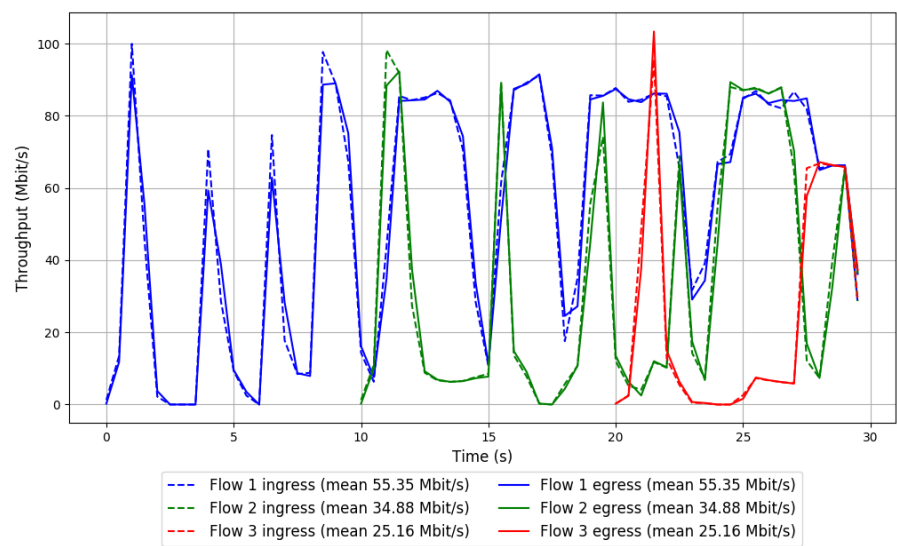
-- Flow 3:

Average throughput: 25.16 Mbit/s

95th percentile per-packet one-way delay: 61.496 ms

Loss rate: 0.00%

Run 8: Report of QUIC Cubic — Data Link



Run 9: Statistics of QUIC Cubic

Start at: 2017-09-19 06:51:05

End at: 2017-09-19 06:51:35

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 84.71 Mbit/s

95th percentile per-packet one-way delay: 61.620 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 53.26 Mbit/s

95th percentile per-packet one-way delay: 61.461 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 37.25 Mbit/s

95th percentile per-packet one-way delay: 61.683 ms

Loss rate: 0.00%

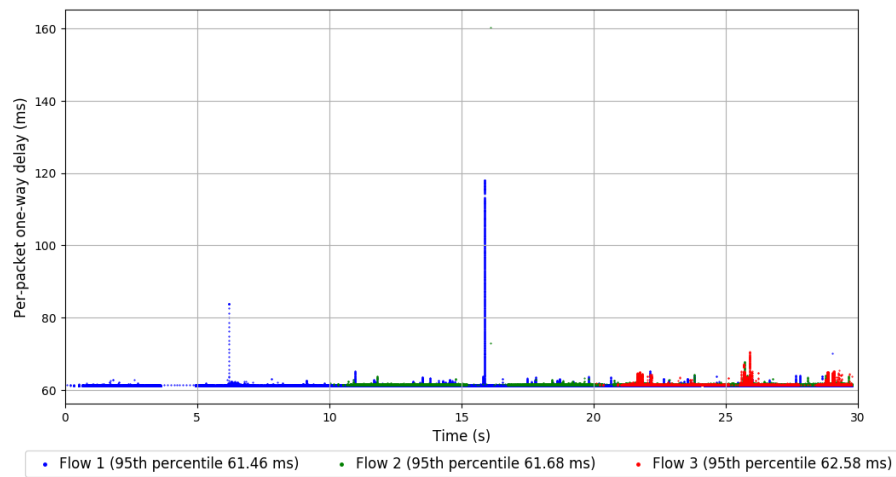
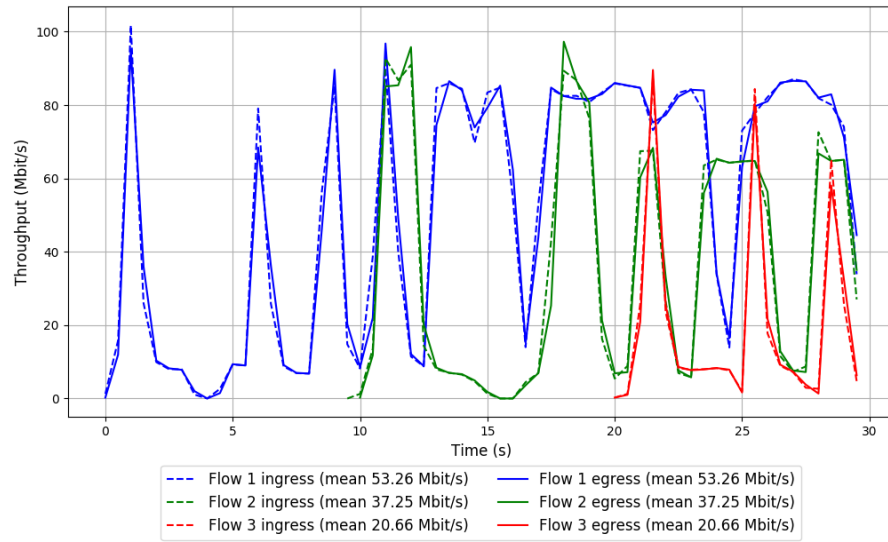
-- Flow 3:

Average throughput: 20.66 Mbit/s

95th percentile per-packet one-way delay: 62.579 ms

Loss rate: 0.01%

## Run 9: Report of QUIC Cubic — Data Link

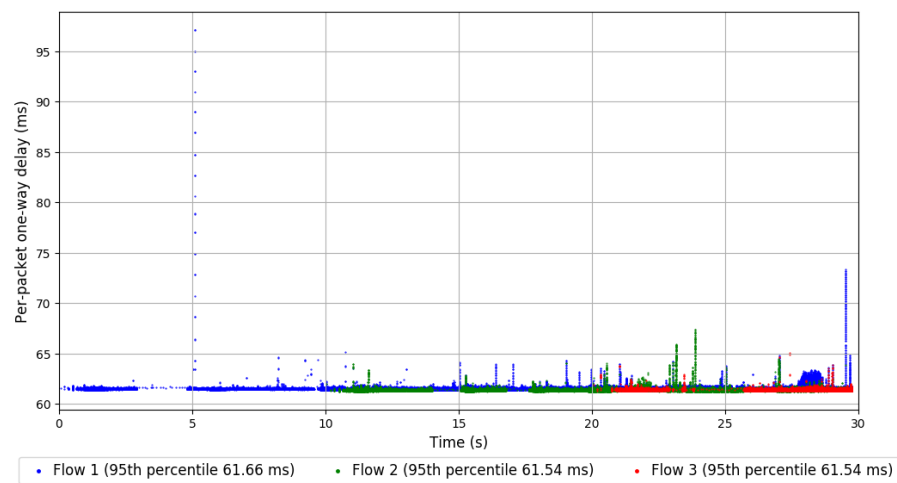
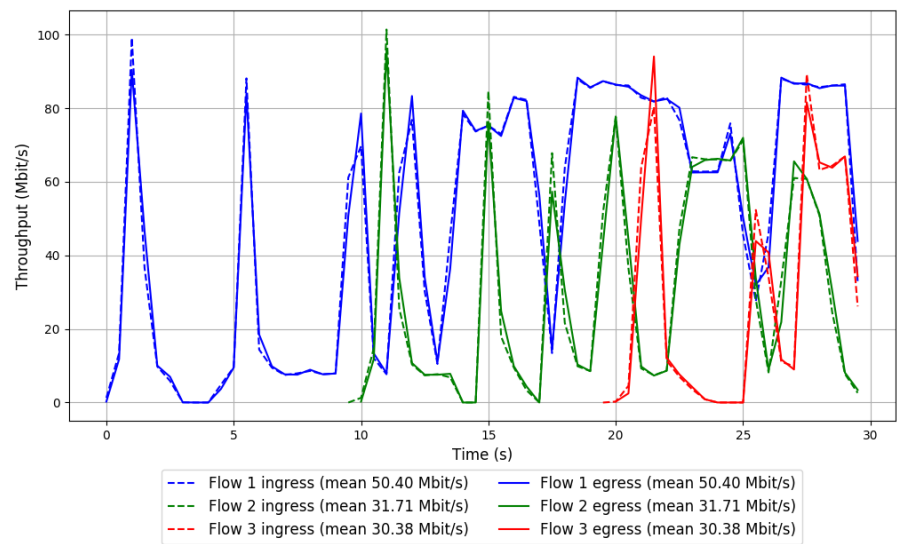


```
Run 10: Statistics of QUIC Cubic

Start at: 2017-09-19 07:00:15
End at: 2017-09-19 07:00:45

# Below is generated by plot.py at 2017-09-19 08:53:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 81.36 Mbit/s
95th percentile per-packet one-way delay: 61.633 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 50.40 Mbit/s
95th percentile per-packet one-way delay: 61.660 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 31.71 Mbit/s
95th percentile per-packet one-way delay: 61.542 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 30.38 Mbit/s
95th percentile per-packet one-way delay: 61.536 ms
Loss rate: 0.00%
```

Run 10: Report of QUIC Cubic — Data Link



Run 1: Statistics of Sprout

Start at: 2017-09-19 05:32:23

End at: 2017-09-19 05:32:53

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.03 Mbit/s

95th percentile per-packet one-way delay: 62.563 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 6.61 Mbit/s

95th percentile per-packet one-way delay: 62.957 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 6.61 Mbit/s

95th percentile per-packet one-way delay: 63.509 ms

Loss rate: 0.04%

-- Flow 3:

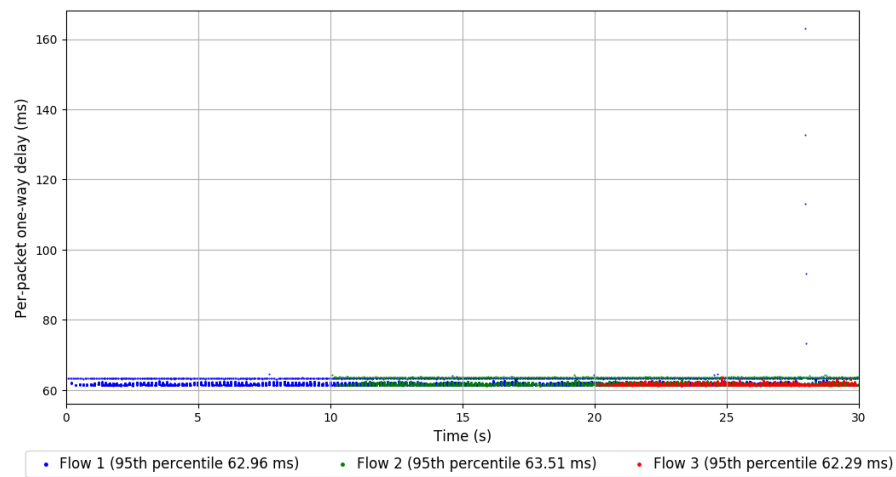
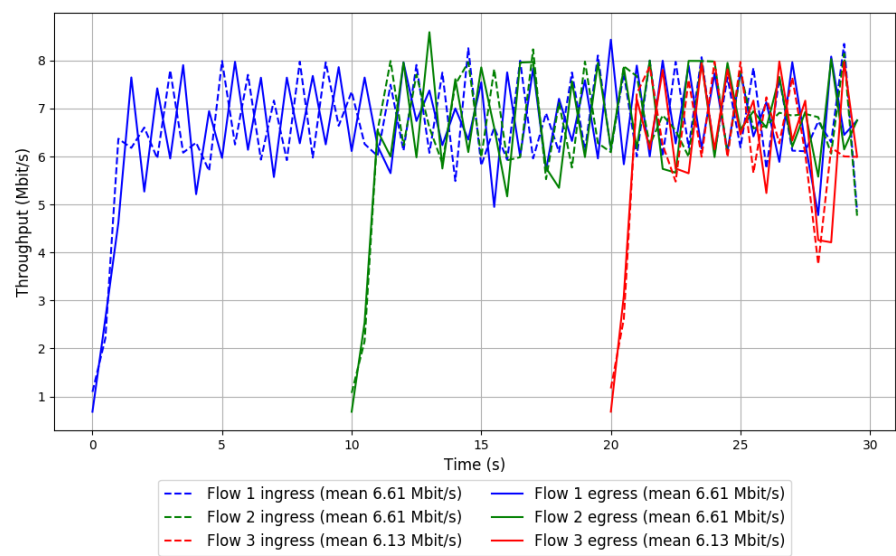
Average throughput: 6.13 Mbit/s

95th percentile per-packet one-way delay: 62.291 ms

Loss rate: 0.00%



Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2017-09-19 05:41:43

End at: 2017-09-19 05:42:13

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.03 Mbit/s

95th percentile per-packet one-way delay: 62.202 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 6.57 Mbit/s

95th percentile per-packet one-way delay: 62.196 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 6.49 Mbit/s

95th percentile per-packet one-way delay: 62.169 ms

Loss rate: 0.06%

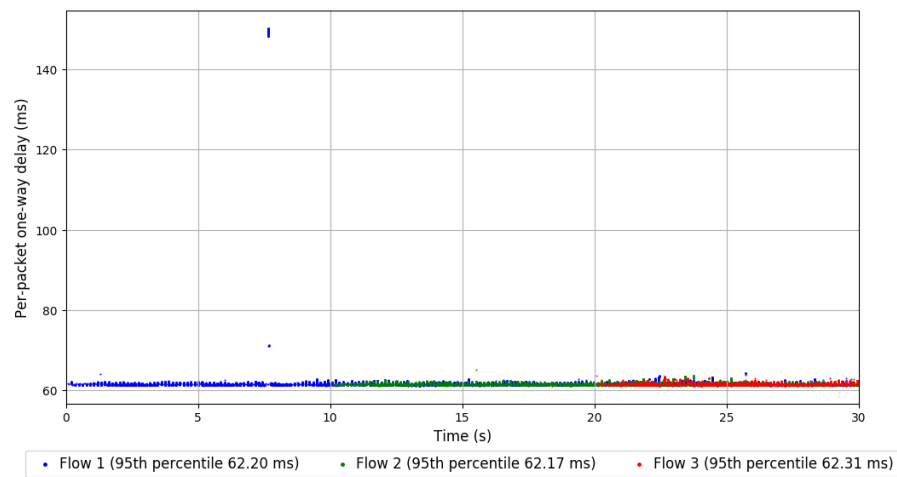
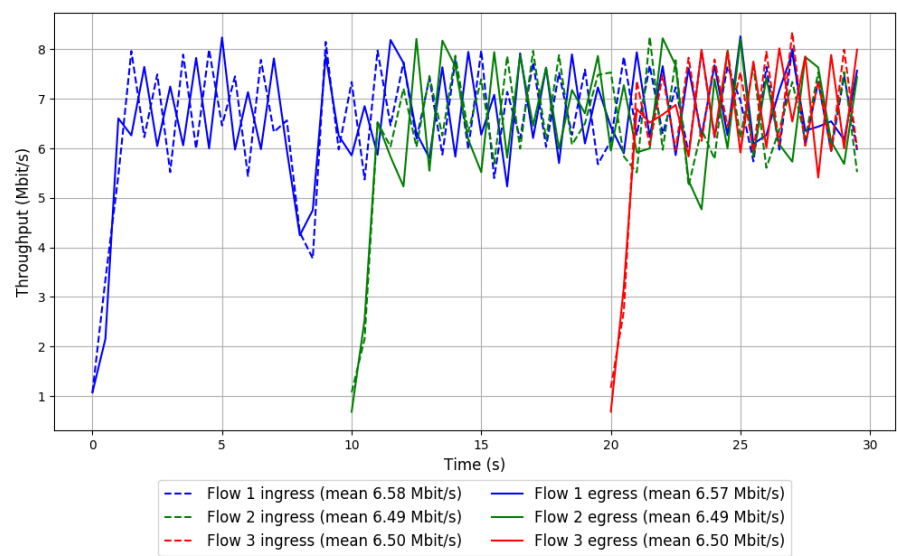
-- Flow 3:

Average throughput: 6.50 Mbit/s

95th percentile per-packet one-way delay: 62.315 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2017-09-19 05:50:46

End at: 2017-09-19 05:51:16

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.02 Mbit/s

95th percentile per-packet one-way delay: 62.364 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 6.63 Mbit/s

95th percentile per-packet one-way delay: 63.319 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 6.48 Mbit/s

95th percentile per-packet one-way delay: 61.948 ms

Loss rate: 0.00%

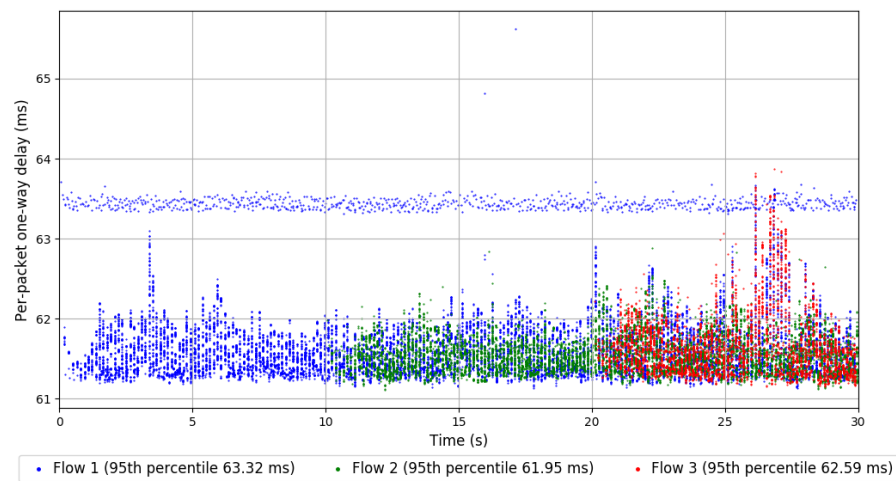
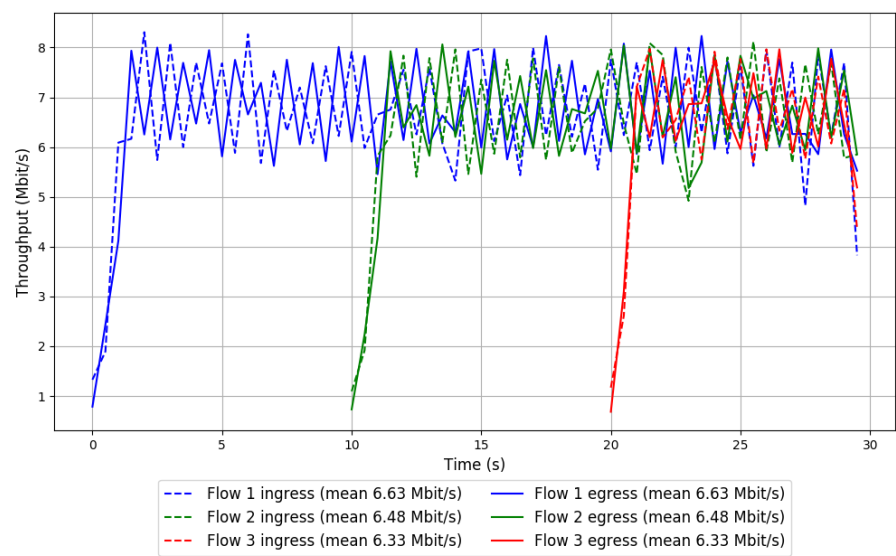
-- Flow 3:

Average throughput: 6.33 Mbit/s

95th percentile per-packet one-way delay: 62.589 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2017-09-19 05:59:59

End at: 2017-09-19 06:00:29

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.05 Mbit/s

95th percentile per-packet one-way delay: 62.317 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 6.57 Mbit/s

95th percentile per-packet one-way delay: 62.095 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 6.60 Mbit/s

95th percentile per-packet one-way delay: 63.355 ms

Loss rate: 0.06%

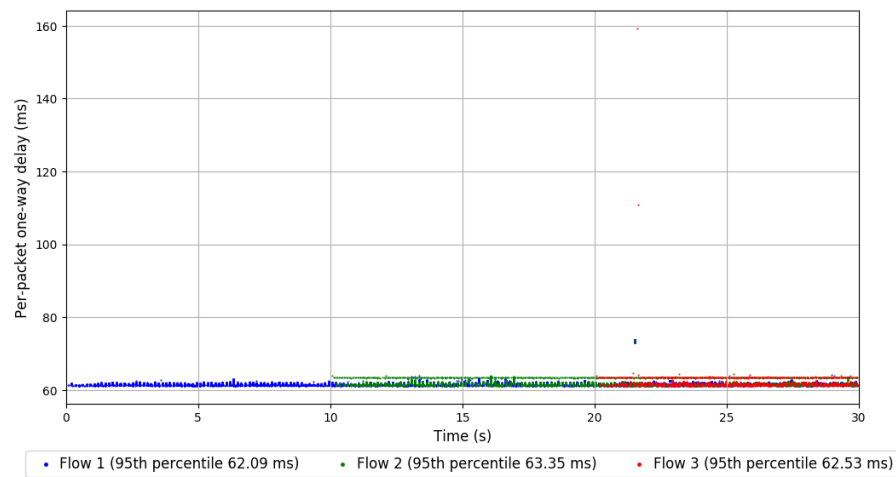
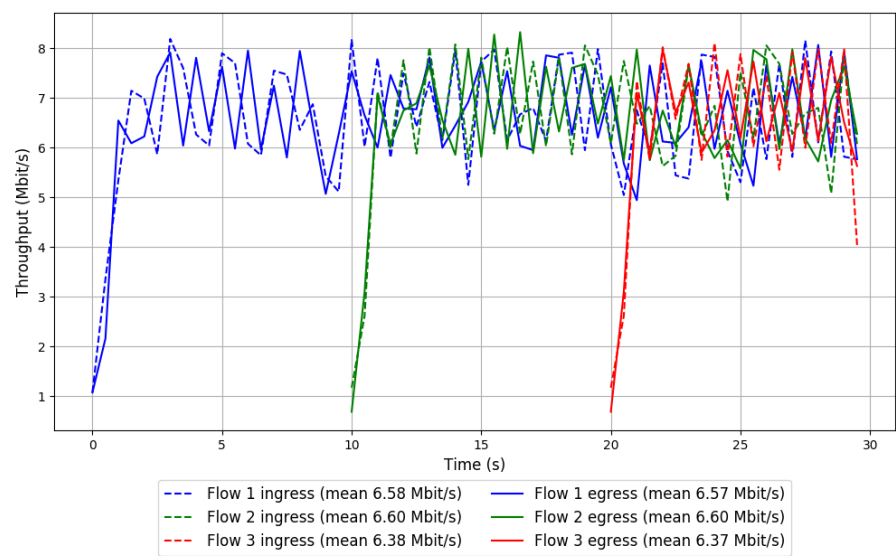
-- Flow 3:

Average throughput: 6.37 Mbit/s

95th percentile per-packet one-way delay: 62.533 ms

Loss rate: 0.15%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2017-09-19 06:09:13

End at: 2017-09-19 06:09:43

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.17 Mbit/s

95th percentile per-packet one-way delay: 62.248 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 6.62 Mbit/s

95th percentile per-packet one-way delay: 62.243 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 6.66 Mbit/s

95th percentile per-packet one-way delay: 62.236 ms

Loss rate: 0.00%

-- Flow 3:

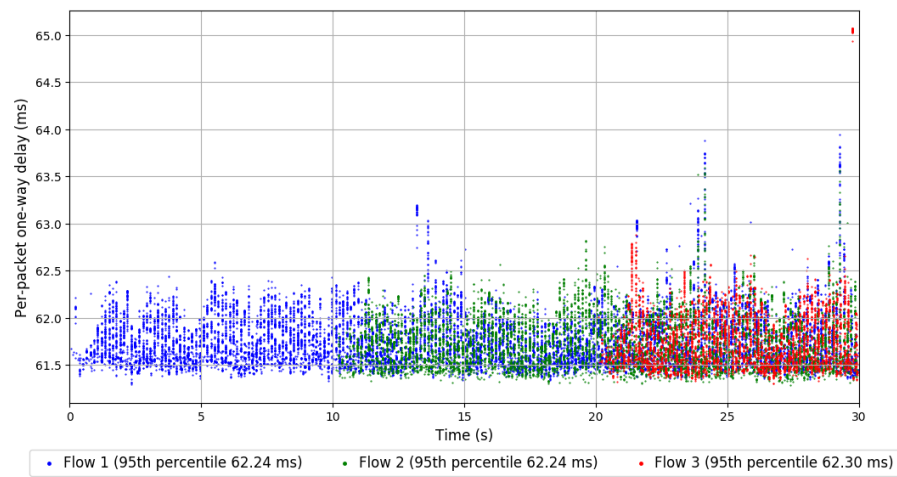
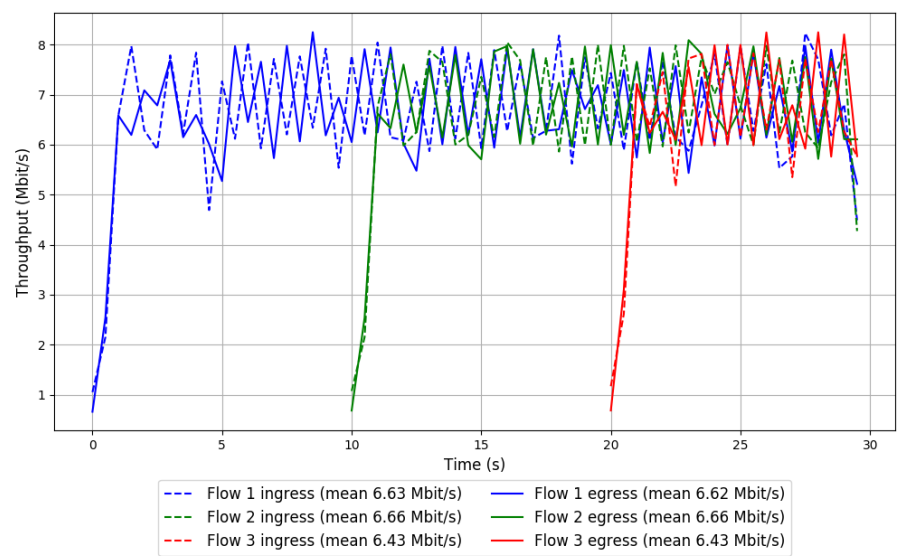
Average throughput: 6.43 Mbit/s

95th percentile per-packet one-way delay: 62.298 ms

Loss rate: 0.00%



Run 5: Report of Sprout — Data Link



Run 6: Statistics of Sprout

Start at: 2017-09-19 06:18:31

End at: 2017-09-19 06:19:01

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.21 Mbit/s

95th percentile per-packet one-way delay: 62.293 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 6.69 Mbit/s

95th percentile per-packet one-way delay: 62.342 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 6.63 Mbit/s

95th percentile per-packet one-way delay: 62.162 ms

Loss rate: 0.00%

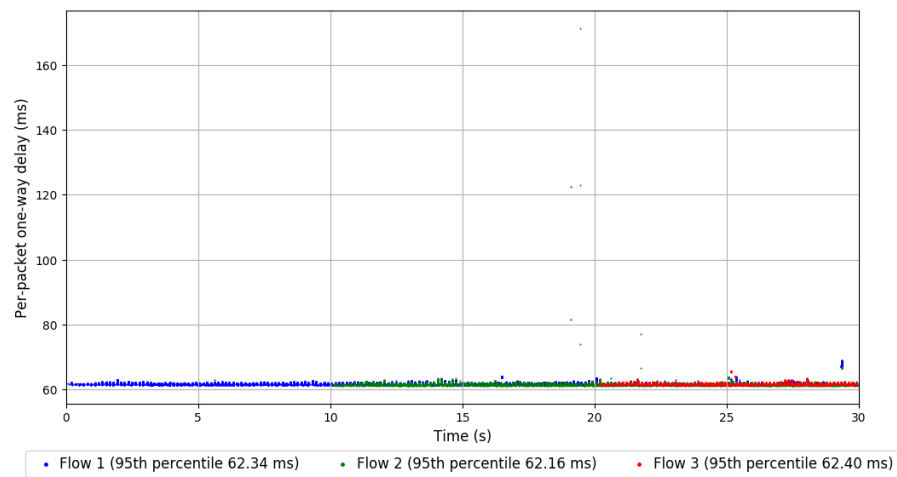
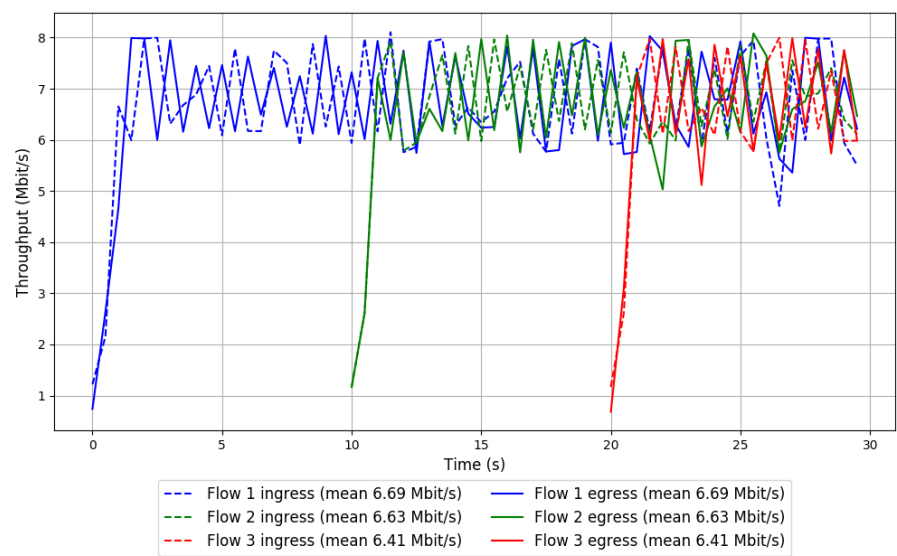
-- Flow 3:

Average throughput: 6.41 Mbit/s

95th percentile per-packet one-way delay: 62.404 ms

Loss rate: 0.06%

Run 6: Report of Sprout — Data Link



Run 7: Statistics of Sprout

Start at: 2017-09-19 06:27:42

End at: 2017-09-19 06:28:12

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.09 Mbit/s

95th percentile per-packet one-way delay: 62.232 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 6.60 Mbit/s

95th percentile per-packet one-way delay: 62.242 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 6.58 Mbit/s

95th percentile per-packet one-way delay: 62.151 ms

Loss rate: 0.04%

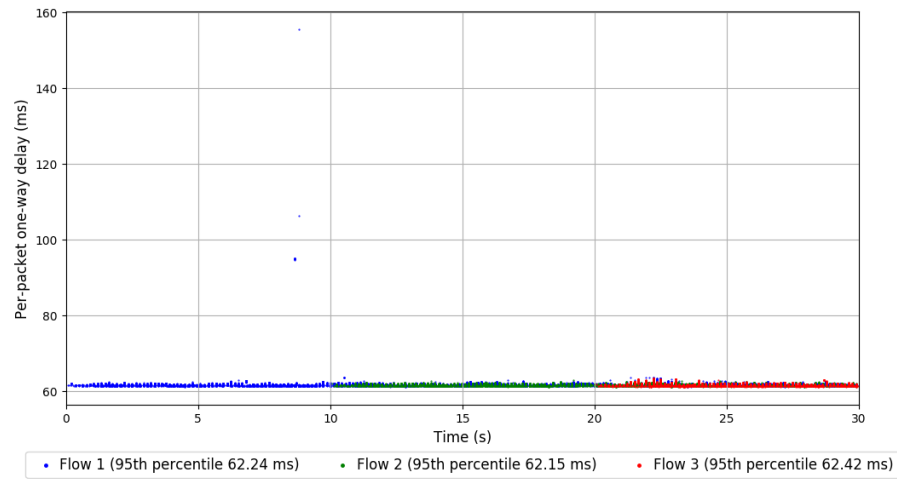
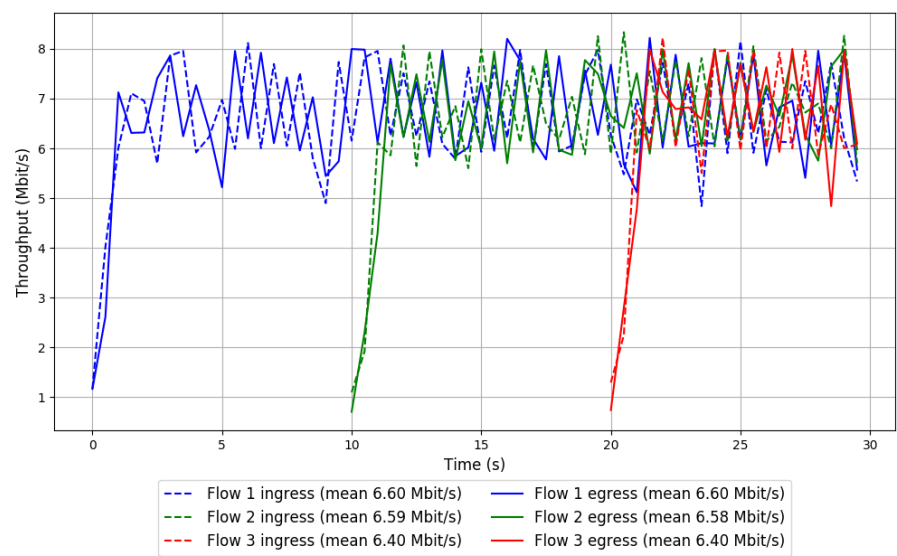
-- Flow 3:

Average throughput: 6.40 Mbit/s

95th percentile per-packet one-way delay: 62.425 ms

Loss rate: 0.06%

Run 7: Report of Sprout — Data Link



Run 8: Statistics of Sprout

Start at: 2017-09-19 06:36:54

End at: 2017-09-19 06:37:24

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.00 Mbit/s

95th percentile per-packet one-way delay: 62.394 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 6.58 Mbit/s

95th percentile per-packet one-way delay: 62.358 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 6.59 Mbit/s

95th percentile per-packet one-way delay: 62.454 ms

Loss rate: 0.00%

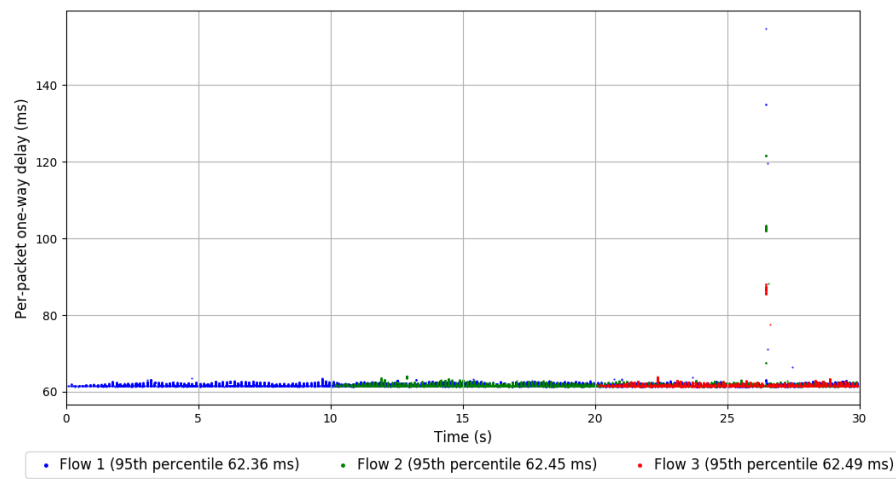
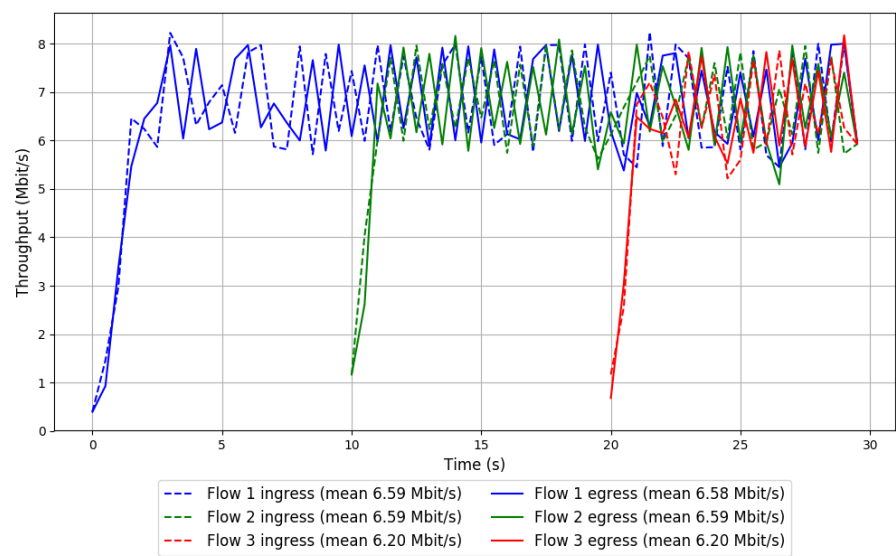
-- Flow 3:

Average throughput: 6.20 Mbit/s

95th percentile per-packet one-way delay: 62.490 ms

Loss rate: 0.00%

Run 8: Report of Sprout — Data Link



Run 9: Statistics of Sprout

Start at: 2017-09-19 06:46:25

End at: 2017-09-19 06:46:55

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 12.97 Mbit/s

95th percentile per-packet one-way delay: 62.305 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 6.57 Mbit/s

95th percentile per-packet one-way delay: 63.072 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 6.48 Mbit/s

95th percentile per-packet one-way delay: 62.235 ms

Loss rate: 0.01%

-- Flow 3:

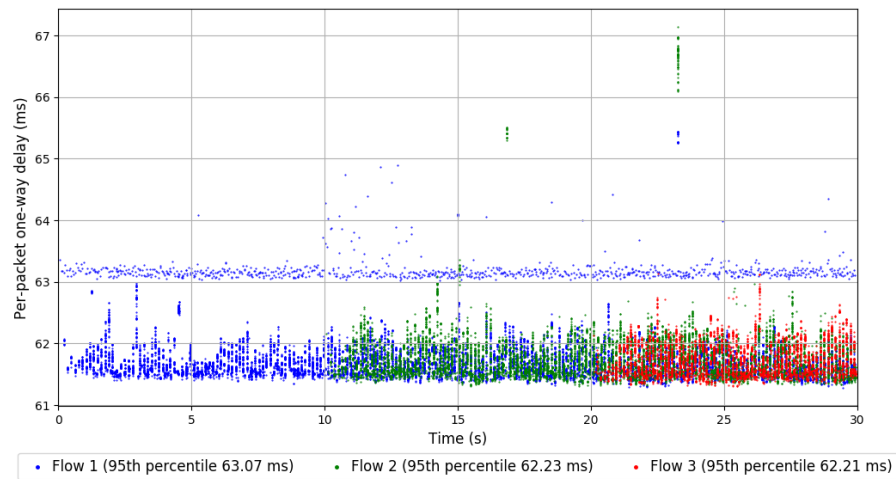
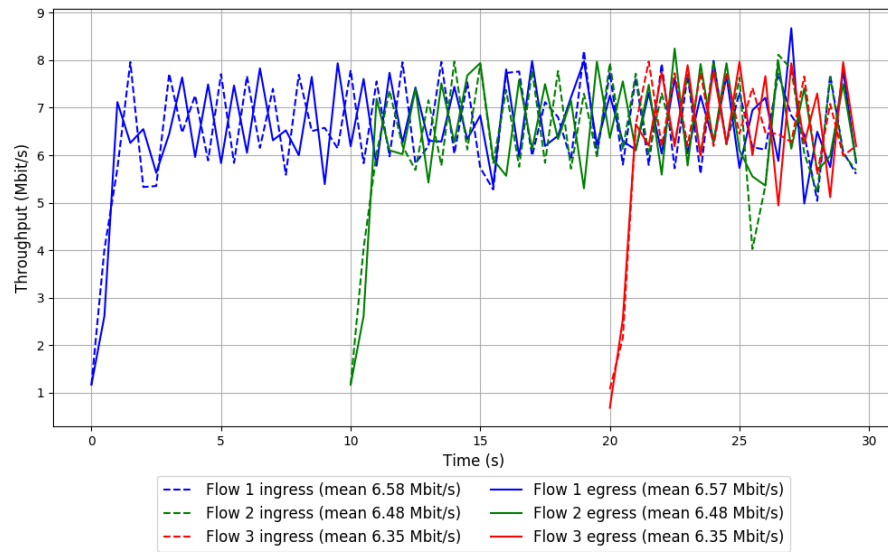
Average throughput: 6.35 Mbit/s

95th percentile per-packet one-way delay: 62.210 ms

Loss rate: 0.00%



## Run 9: Report of Sprout — Data Link



Run 10: Statistics of Sprout

Start at: 2017-09-19 06:55:48

End at: 2017-09-19 06:56:18

# Below is generated by plot.py at 2017-09-19 08:53:21

# Datalink statistics

-- Total of 3 flows:

Average throughput: 13.20 Mbit/s

95th percentile per-packet one-way delay: 62.342 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 6.64 Mbit/s

95th percentile per-packet one-way delay: 62.380 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 6.67 Mbit/s

95th percentile per-packet one-way delay: 62.290 ms

Loss rate: 0.00%

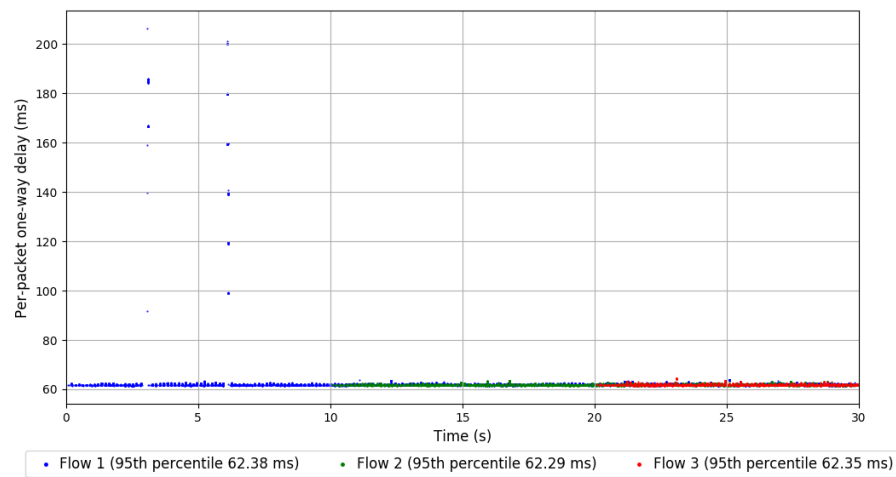
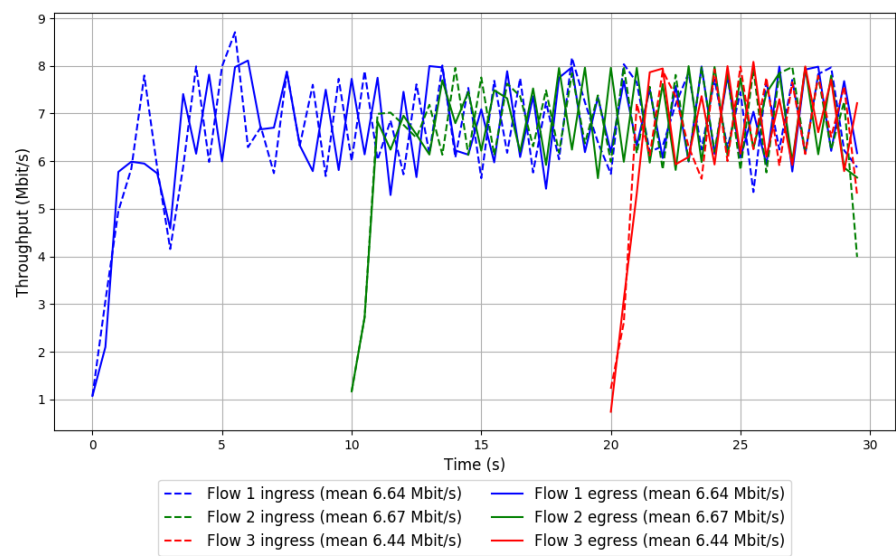
-- Flow 3:

Average throughput: 6.44 Mbit/s

95th percentile per-packet one-way delay: 62.355 ms

Loss rate: 0.00%

Run 10: Report of Sprout — Data Link

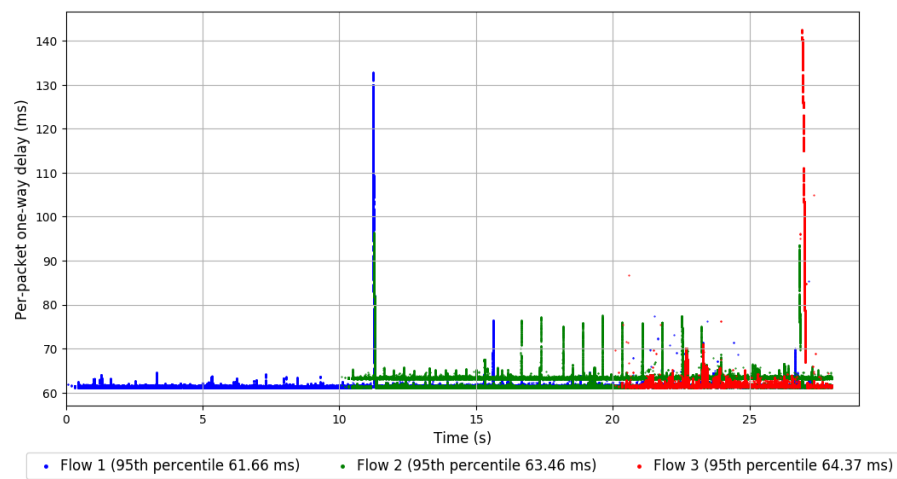
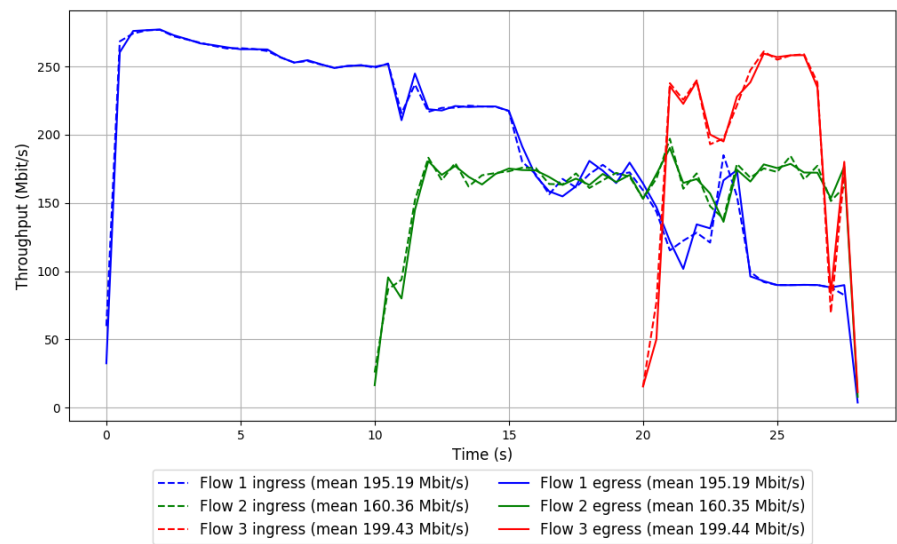


```
Run 1: Statistics of TaoVA-100x

Start at: 2017-09-19 05:34:07
End at: 2017-09-19 05:34:37

# Below is generated by plot.py at 2017-09-19 08:58:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 354.74 Mbit/s
95th percentile per-packet one-way delay: 63.356 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 195.19 Mbit/s
95th percentile per-packet one-way delay: 61.665 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 160.35 Mbit/s
95th percentile per-packet one-way delay: 63.462 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 199.44 Mbit/s
95th percentile per-packet one-way delay: 64.370 ms
Loss rate: 0.00%
```

Run 1: Report of TaoVA-100x — Data Link

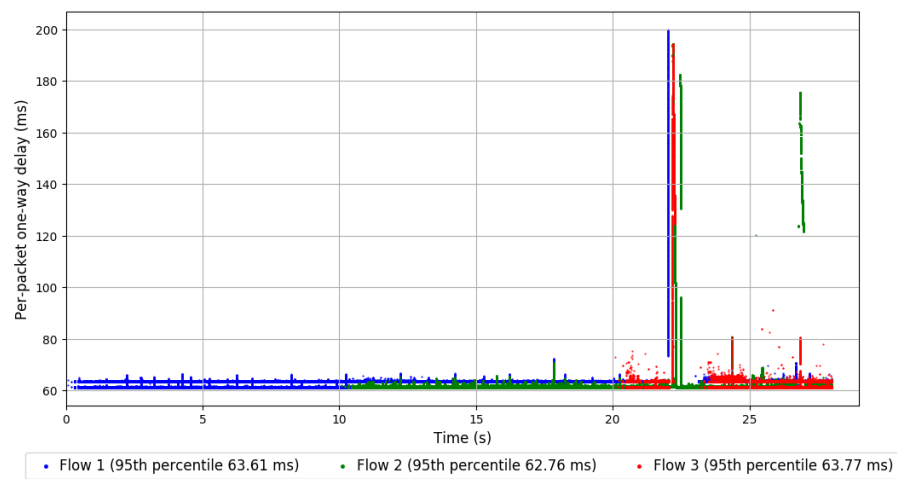
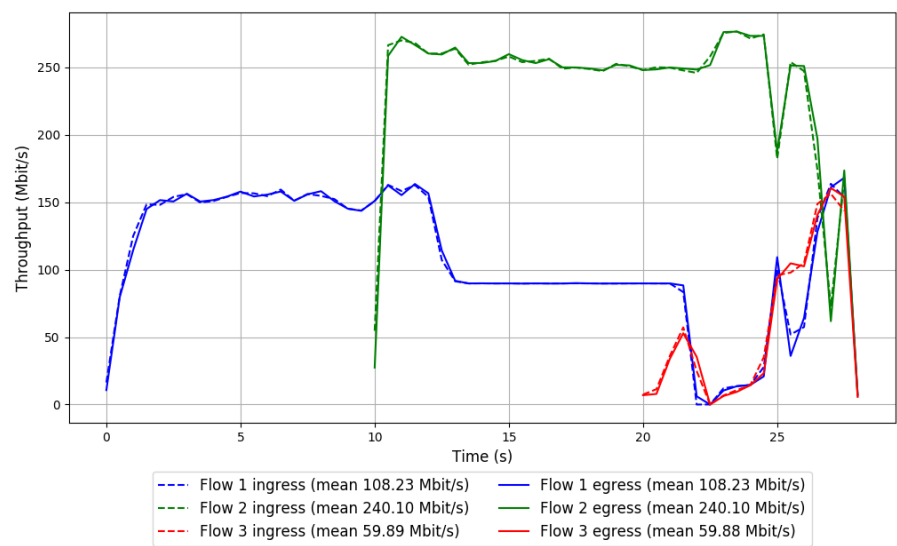


```
Run 2: Statistics of TaoVA-100x

Start at: 2017-09-19 05:43:27
End at: 2017-09-19 05:43:57

# Below is generated by plot.py at 2017-09-19 08:58:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 279.30 Mbit/s
95th percentile per-packet one-way delay: 63.587 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 108.23 Mbit/s
95th percentile per-packet one-way delay: 63.610 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 240.10 Mbit/s
95th percentile per-packet one-way delay: 62.761 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 59.88 Mbit/s
95th percentile per-packet one-way delay: 63.766 ms
Loss rate: 0.00%
```

Run 2: Report of TaoVA-100x — Data Link



Run 3: Statistics of TaoVA-100x

Start at: 2017-09-19 05:52:28

End at: 2017-09-19 05:52:58

# Below is generated by plot.py at 2017-09-19 08:59:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 394.07 Mbit/s

95th percentile per-packet one-way delay: 63.513 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 215.40 Mbit/s

95th percentile per-packet one-way delay: 62.455 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 217.66 Mbit/s

95th percentile per-packet one-way delay: 63.587 ms

Loss rate: 0.00%

-- Flow 3:

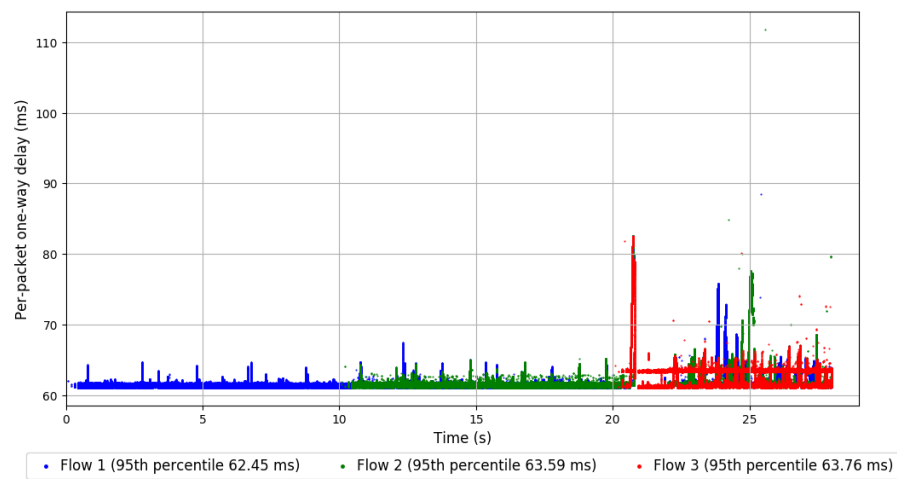
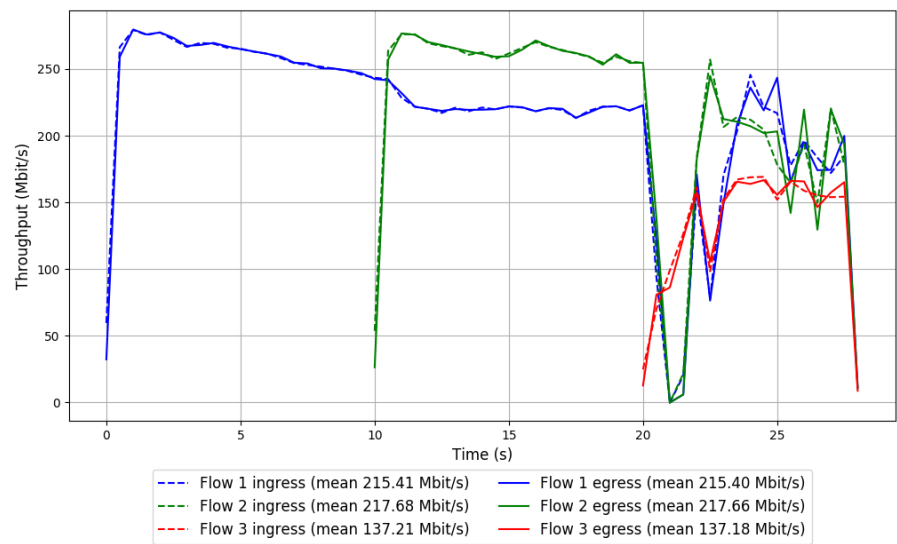
Average throughput: 137.18 Mbit/s

95th percentile per-packet one-way delay: 63.763 ms

Loss rate: 0.00%



Run 3: Report of TaoVA-100x — Data Link



Run 4: Statistics of TaoVA-100x

Start at: 2017-09-19 06:01:43

End at: 2017-09-19 06:02:13

# Below is generated by plot.py at 2017-09-19 08:59:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 384.66 Mbit/s

95th percentile per-packet one-way delay: 62.512 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 194.90 Mbit/s

95th percentile per-packet one-way delay: 62.372 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 226.56 Mbit/s

95th percentile per-packet one-way delay: 62.552 ms

Loss rate: 0.00%

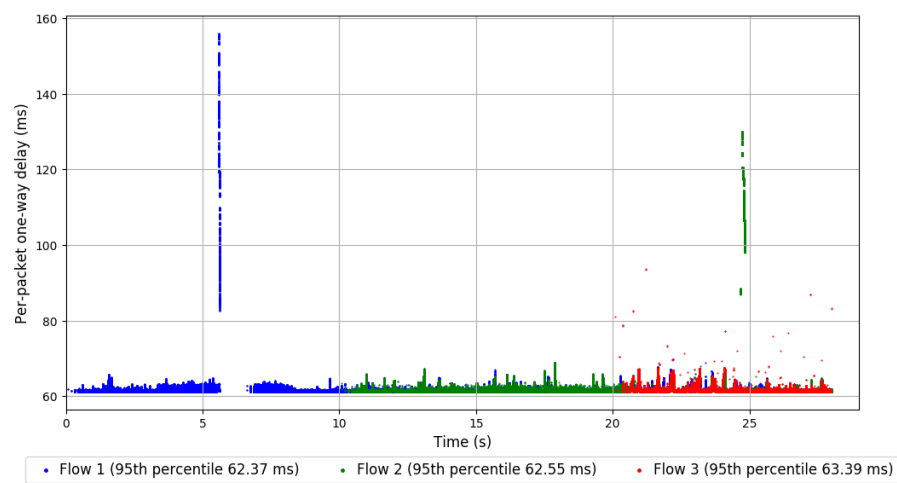
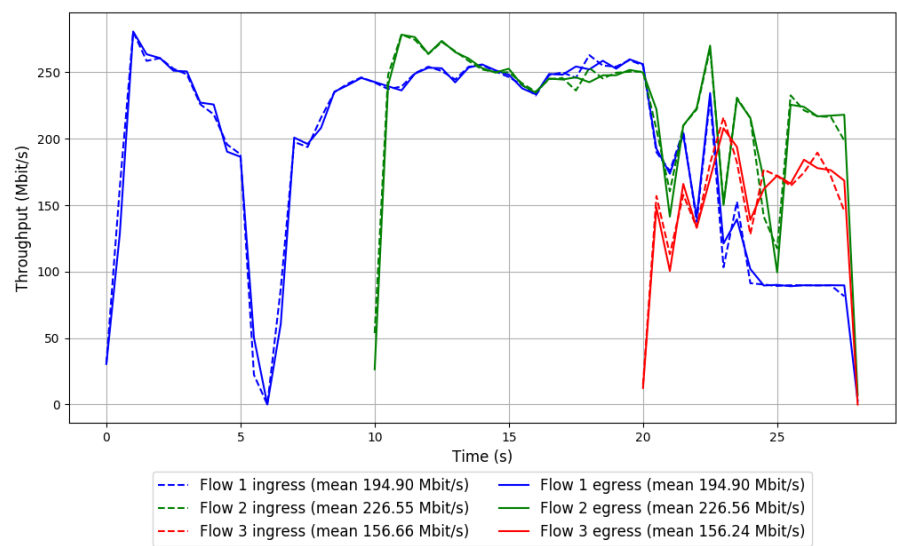
-- Flow 3:

Average throughput: 156.24 Mbit/s

95th percentile per-packet one-way delay: 63.386 ms

Loss rate: 0.00%

Run 4: Report of TaoVA-100x — Data Link



Run 5: Statistics of TaoVA-100x

Start at: 2017-09-19 06:10:58

End at: 2017-09-19 06:11:28

# Below is generated by plot.py at 2017-09-19 08:59:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 376.15 Mbit/s

95th percentile per-packet one-way delay: 61.865 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 168.10 Mbit/s

95th percentile per-packet one-way delay: 61.658 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 231.57 Mbit/s

95th percentile per-packet one-way delay: 62.266 ms

Loss rate: 0.00%

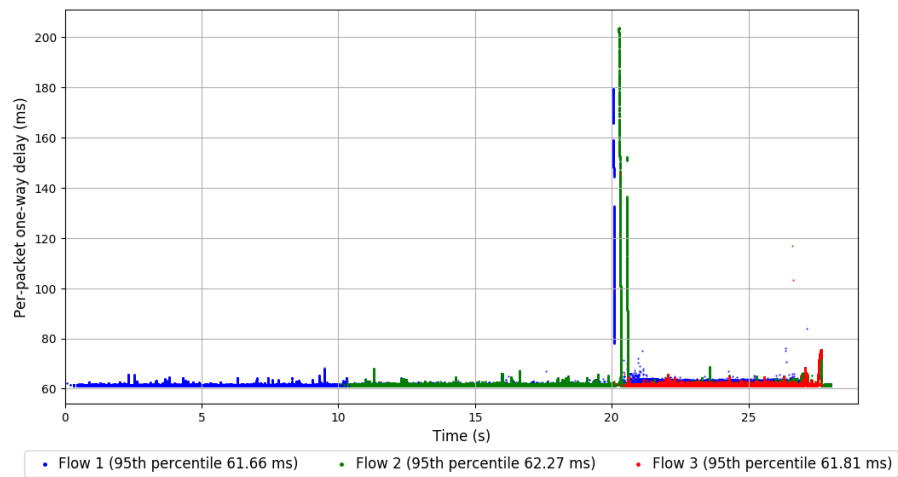
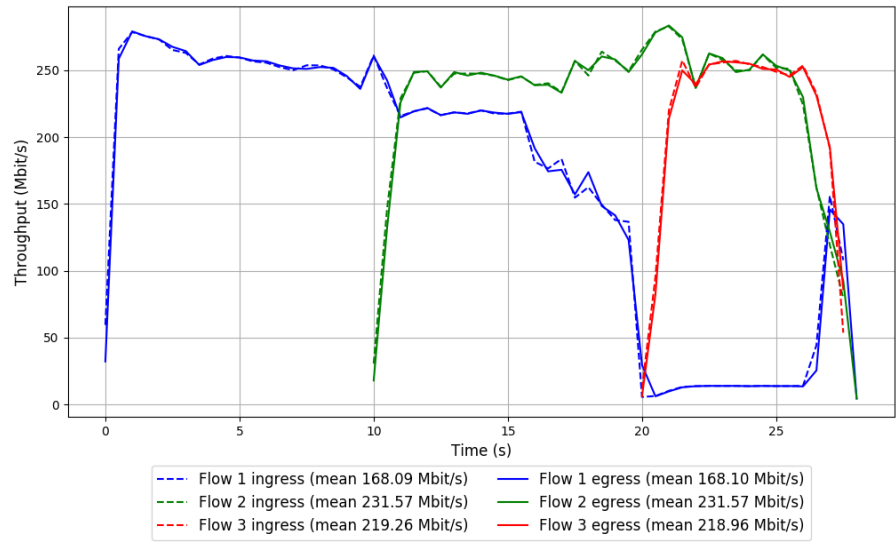
-- Flow 3:

Average throughput: 218.96 Mbit/s

95th percentile per-packet one-way delay: 61.812 ms

Loss rate: 0.00%

## Run 5: Report of TaoVA-100x — Data Link



Run 6: Statistics of TaoVA-100x

Start at: 2017-09-19 06:20:16

End at: 2017-09-19 06:20:46

# Below is generated by plot.py at 2017-09-19 08:59:47

# Datalink statistics

-- Total of 3 flows:

Average throughput: 358.47 Mbit/s

95th percentile per-packet one-way delay: 63.633 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 210.73 Mbit/s

95th percentile per-packet one-way delay: 65.239 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 126.40 Mbit/s

95th percentile per-packet one-way delay: 63.602 ms

Loss rate: 0.00%

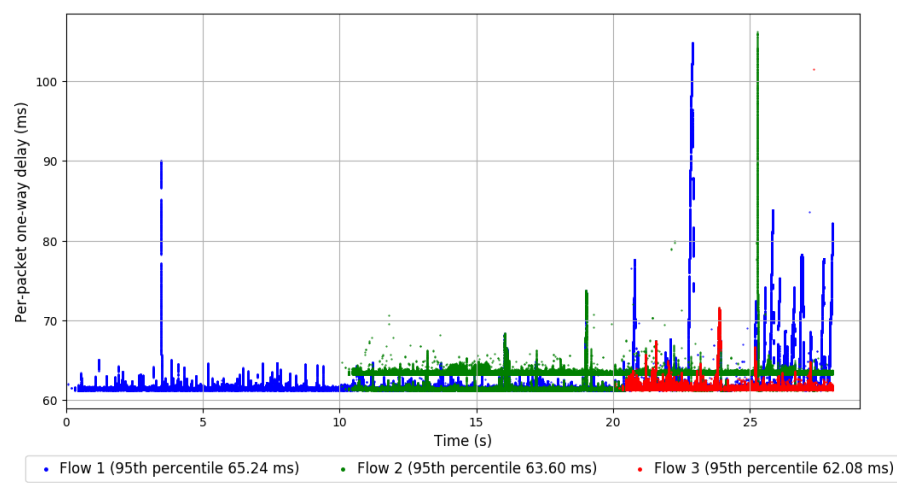
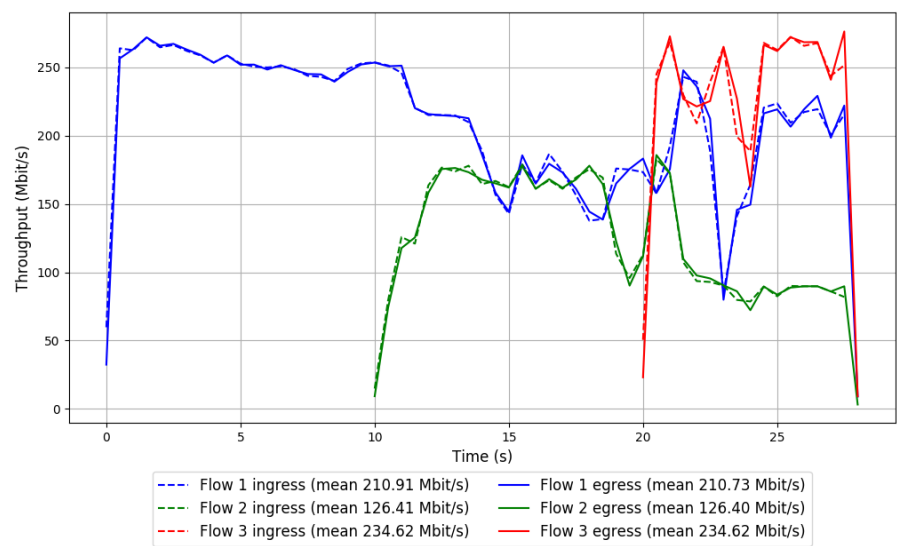
-- Flow 3:

Average throughput: 234.62 Mbit/s

95th percentile per-packet one-way delay: 62.084 ms

Loss rate: 0.00%

Run 6: Report of TaoVA-100x — Data Link



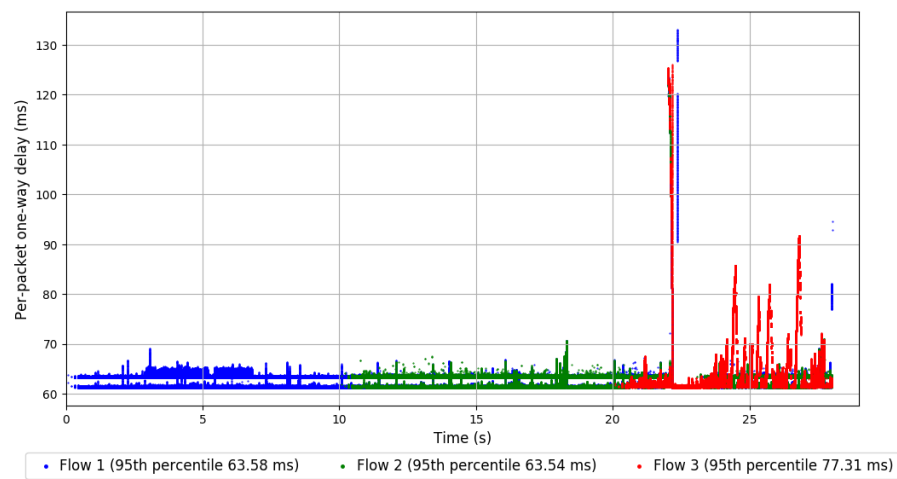
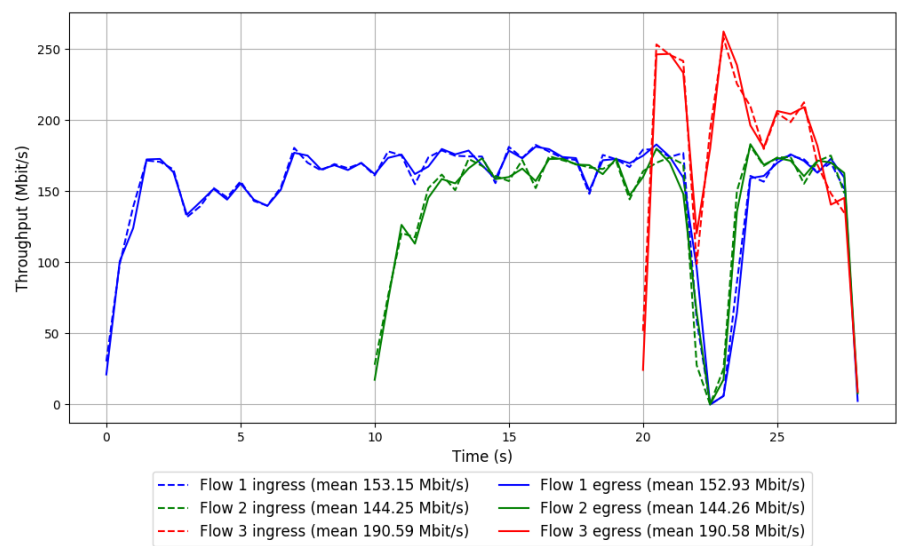
```
Run 7: Statistics of TaoVA-100x

Start at: 2017-09-19 06:29:27
End at: 2017-09-19 06:29:57

# Below is generated by plot.py at 2017-09-19 09:02:39
# Datalink statistics
-- Total of 3 flows:
Average throughput: 299.59 Mbit/s
95th percentile per-packet one-way delay: 64.653 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 152.93 Mbit/s
95th percentile per-packet one-way delay: 63.584 ms
Loss rate: 0.11%
-- Flow 2:
Average throughput: 144.26 Mbit/s
95th percentile per-packet one-way delay: 63.544 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 190.58 Mbit/s
95th percentile per-packet one-way delay: 77.315 ms
Loss rate: 0.00%
```



Run 7: Report of TaoVA-100x — Data Link



Run 8: Statistics of TaoVA-100x

Start at: 2017-09-19 06:38:40

End at: 2017-09-19 06:39:10

# Below is generated by plot.py at 2017-09-19 09:05:22

# Datalink statistics

-- Total of 3 flows:

Average throughput: 376.73 Mbit/s

95th percentile per-packet one-way delay: 63.925 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 243.13 Mbit/s

95th percentile per-packet one-way delay: 64.266 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 163.11 Mbit/s

95th percentile per-packet one-way delay: 63.007 ms

Loss rate: 0.00%

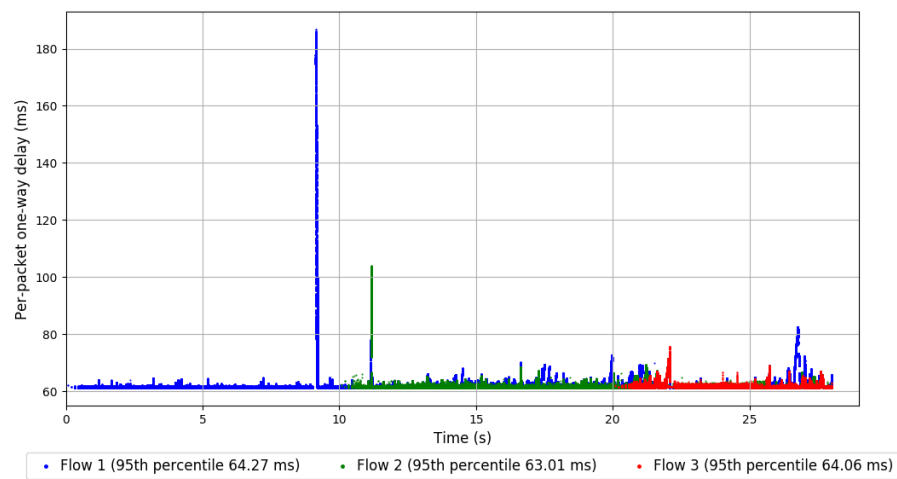
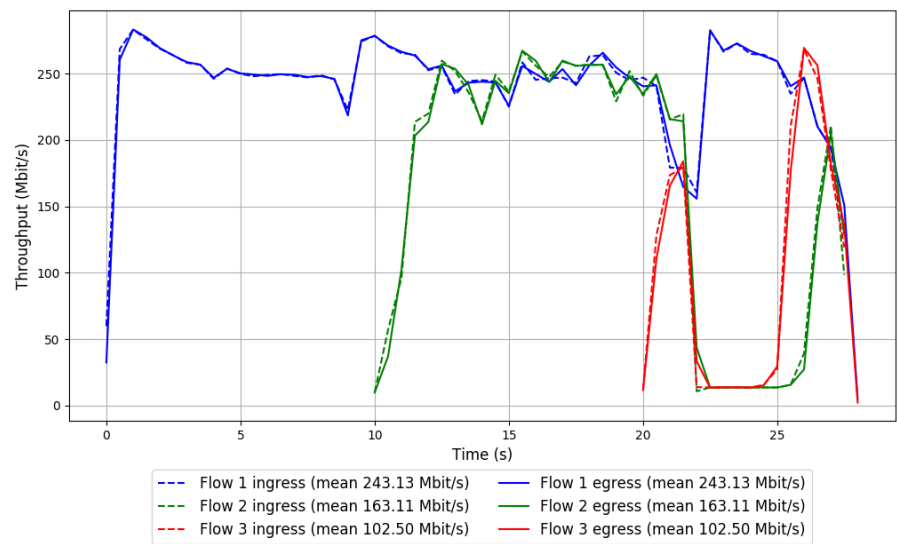
-- Flow 3:

Average throughput: 102.50 Mbit/s

95th percentile per-packet one-way delay: 64.058 ms

Loss rate: 0.00%

Run 8: Report of TaoVA-100x — Data Link

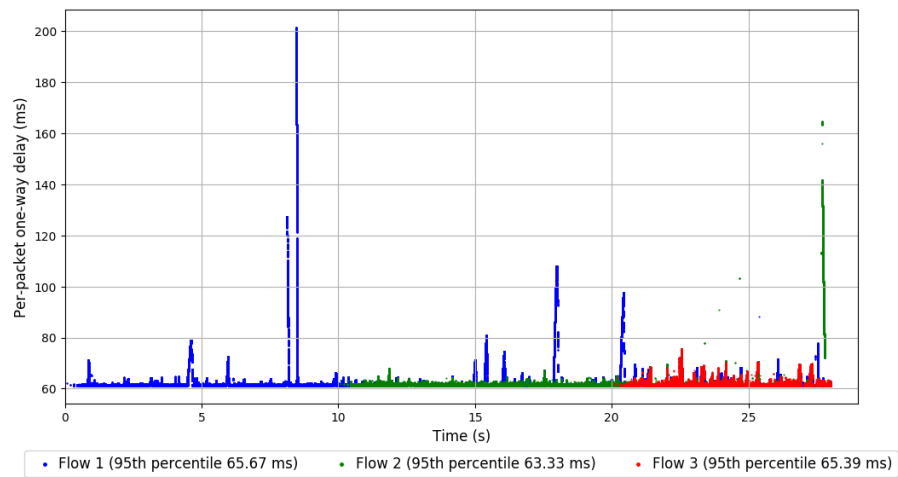
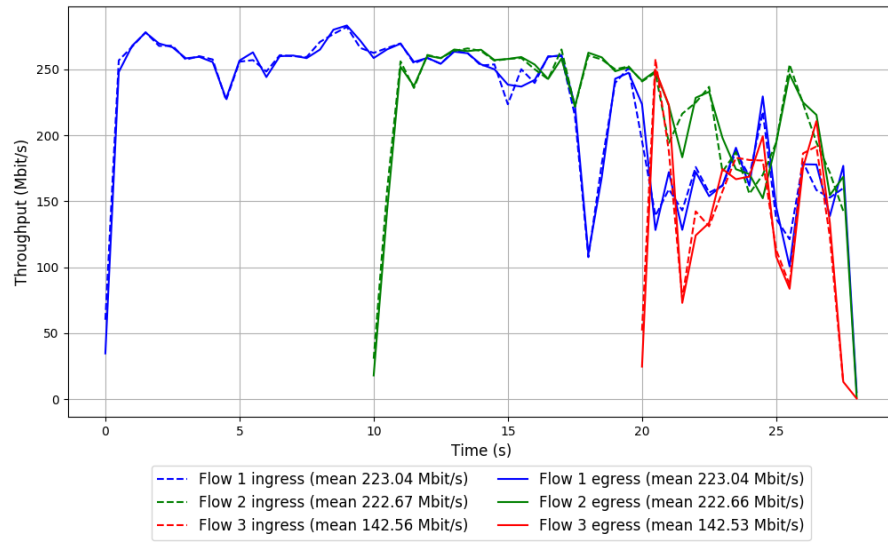


```
Run 9: Statistics of TaoVA-100x

Start at: 2017-09-19 06:48:11
End at: 2017-09-19 06:48:41

# Below is generated by plot.py at 2017-09-19 09:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 406.42 Mbit/s
95th percentile per-packet one-way delay: 64.590 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 223.04 Mbit/s
95th percentile per-packet one-way delay: 65.670 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 222.66 Mbit/s
95th percentile per-packet one-way delay: 63.329 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 142.53 Mbit/s
95th percentile per-packet one-way delay: 65.393 ms
Loss rate: 0.02%
```

### Run 9: Report of TaoVA-100x — Data Link

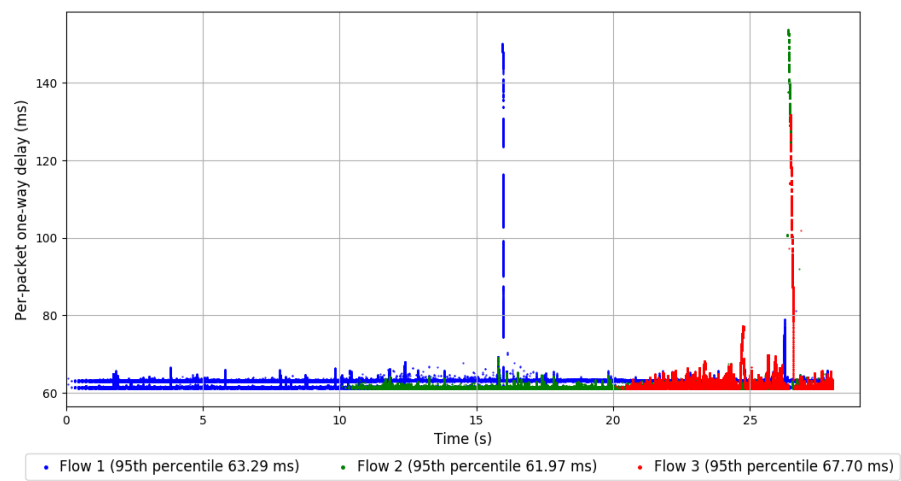
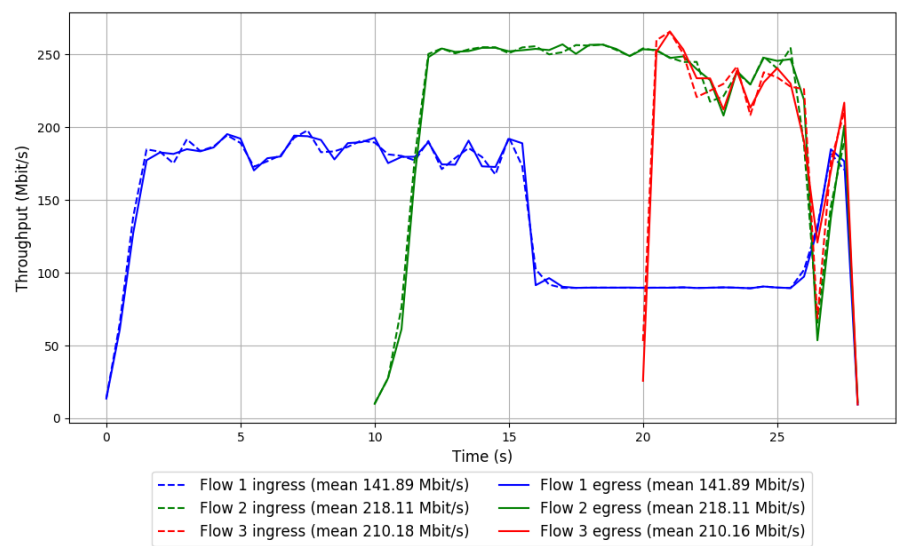


```
Run 10: Statistics of TaoVA-100x

Start at: 2017-09-19 06:57:33
End at: 2017-09-19 06:58:03

# Below is generated by plot.py at 2017-09-19 09:08:29
# Datalink statistics
-- Total of 3 flows:
Average throughput: 341.57 Mbit/s
95th percentile per-packet one-way delay: 63.353 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 141.89 Mbit/s
95th percentile per-packet one-way delay: 63.286 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 218.11 Mbit/s
95th percentile per-packet one-way delay: 61.970 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 210.16 Mbit/s
95th percentile per-packet one-way delay: 67.698 ms
Loss rate: 0.00%
```

Run 10: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2017-09-19 05:36:02

End at: 2017-09-19 05:36:32

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 146.84 Mbit/s

95th percentile per-packet one-way delay: 62.855 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.26 Mbit/s

95th percentile per-packet one-way delay: 63.348 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 123.79 Mbit/s

95th percentile per-packet one-way delay: 62.655 ms

Loss rate: 0.00%

-- Flow 3:

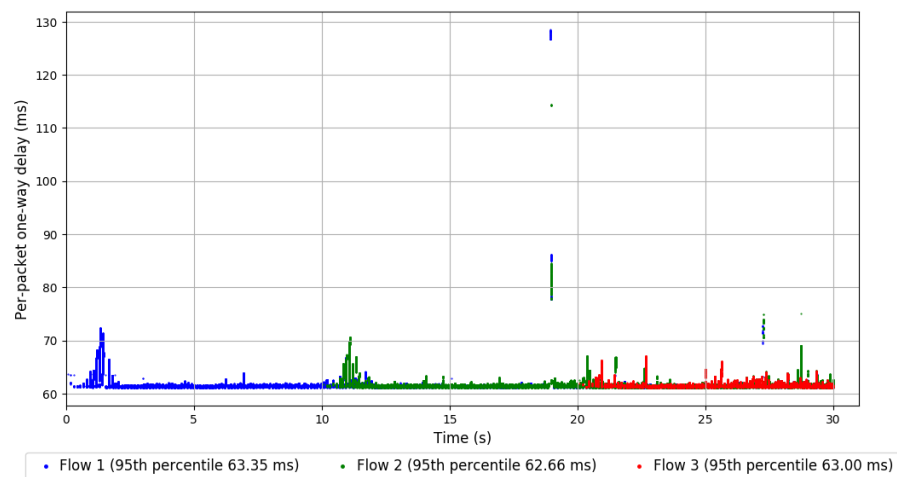
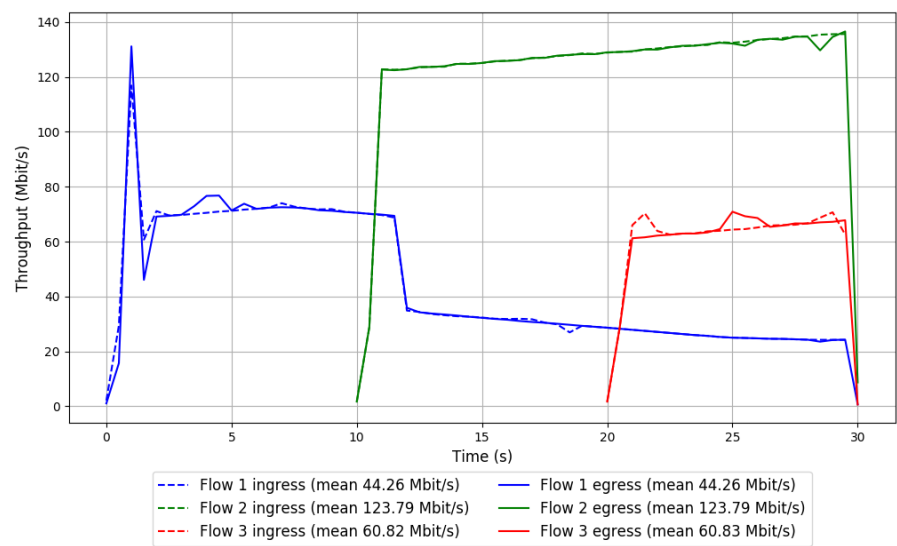
Average throughput: 60.83 Mbit/s

95th percentile per-packet one-way delay: 63.003 ms

Loss rate: 0.00%



Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2017-09-19 05:45:14

End at: 2017-09-19 05:45:44

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 148.89 Mbit/s

95th percentile per-packet one-way delay: 64.006 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 58.66 Mbit/s

95th percentile per-packet one-way delay: 62.827 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 98.19 Mbit/s

95th percentile per-packet one-way delay: 63.089 ms

Loss rate: 0.00%

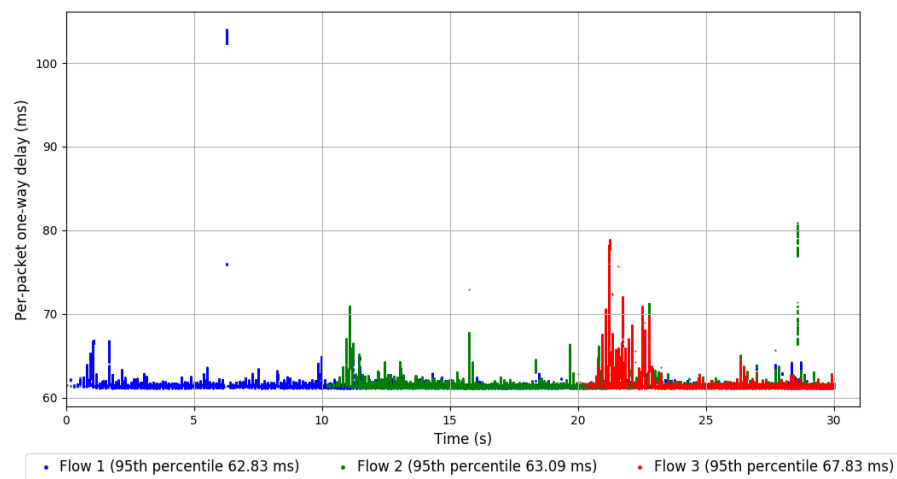
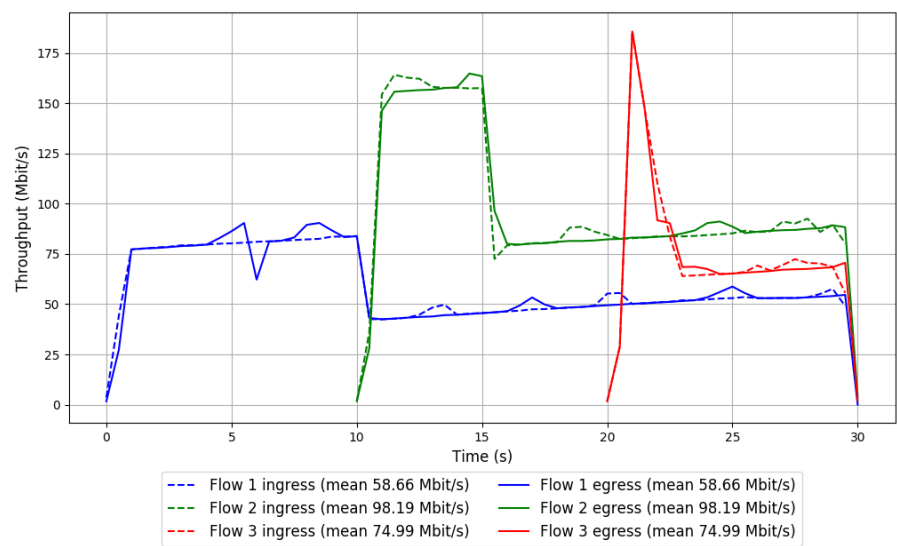
-- Flow 3:

Average throughput: 74.99 Mbit/s

95th percentile per-packet one-way delay: 67.835 ms

Loss rate: 0.00%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2017-09-19 05:54:26

End at: 2017-09-19 05:54:56

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 179.01 Mbit/s

95th percentile per-packet one-way delay: 63.022 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 91.08 Mbit/s

95th percentile per-packet one-way delay: 62.793 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 100.57 Mbit/s

95th percentile per-packet one-way delay: 63.178 ms

Loss rate: 0.00%

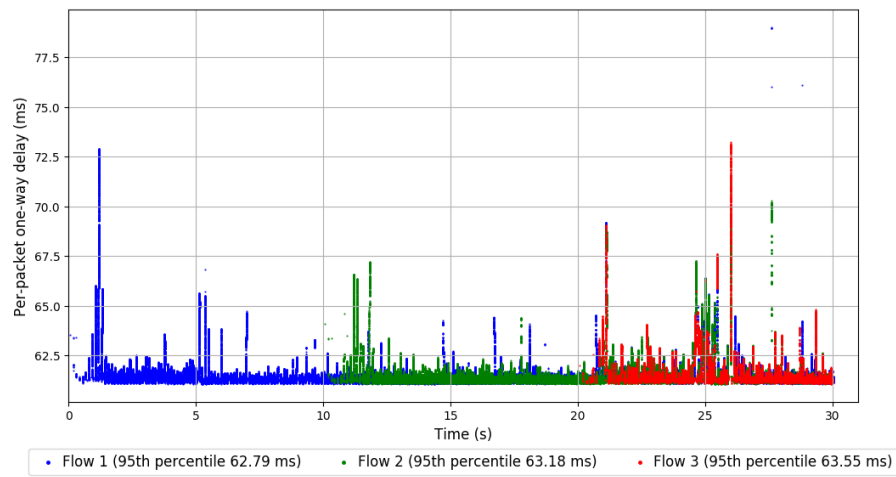
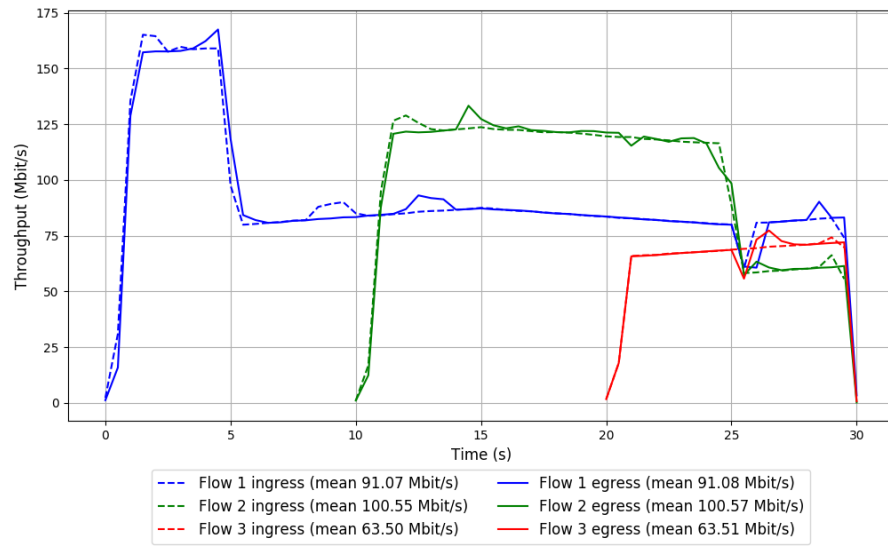
-- Flow 3:

Average throughput: 63.51 Mbit/s

95th percentile per-packet one-way delay: 63.553 ms

Loss rate: 0.00%

### Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2017-09-19 06:03:41

End at: 2017-09-19 06:04:11

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 90.80 Mbit/s

95th percentile per-packet one-way delay: 66.160 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 43.61 Mbit/s

95th percentile per-packet one-way delay: 62.816 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 54.22 Mbit/s

95th percentile per-packet one-way delay: 68.695 ms

Loss rate: 0.01%

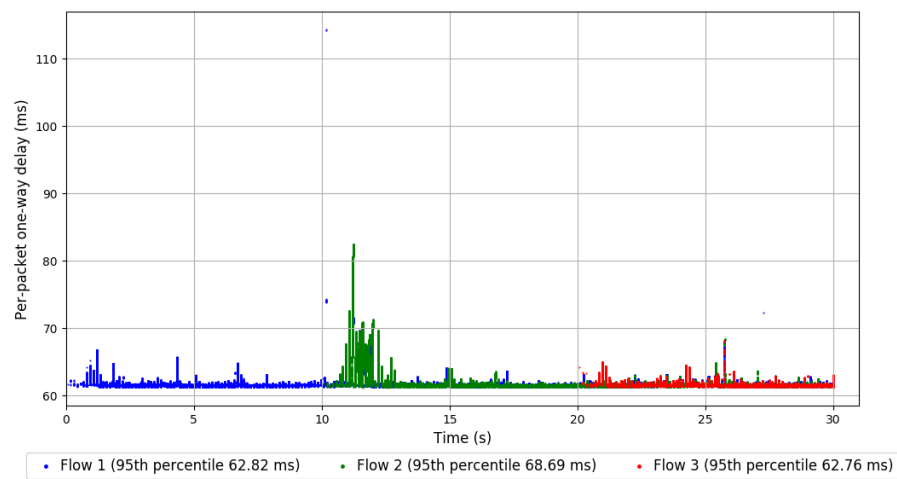
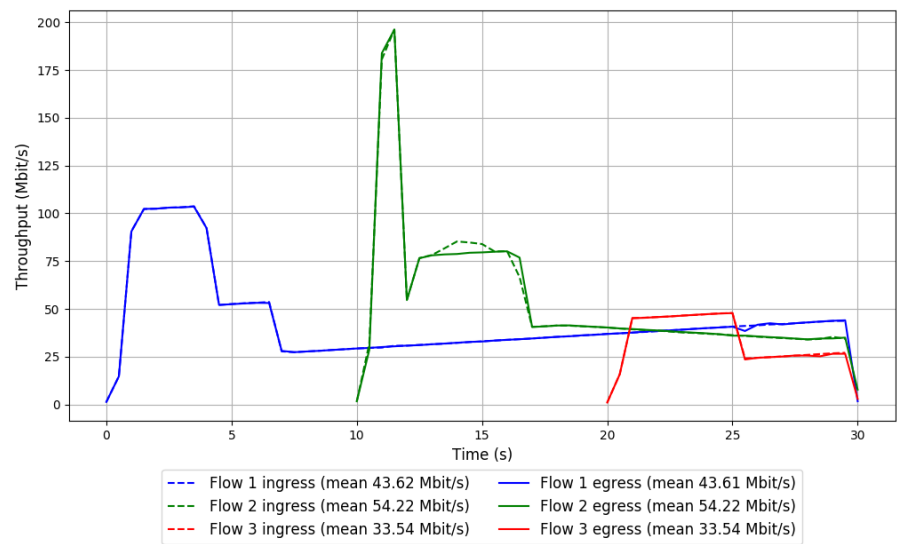
-- Flow 3:

Average throughput: 33.54 Mbit/s

95th percentile per-packet one-way delay: 62.759 ms

Loss rate: 0.01%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2017-09-19 06:12:54

End at: 2017-09-19 06:13:24

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 227.97 Mbit/s

95th percentile per-packet one-way delay: 68.372 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 92.07 Mbit/s

95th percentile per-packet one-way delay: 67.284 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 182.36 Mbit/s

95th percentile per-packet one-way delay: 68.707 ms

Loss rate: 0.00%

-- Flow 3:

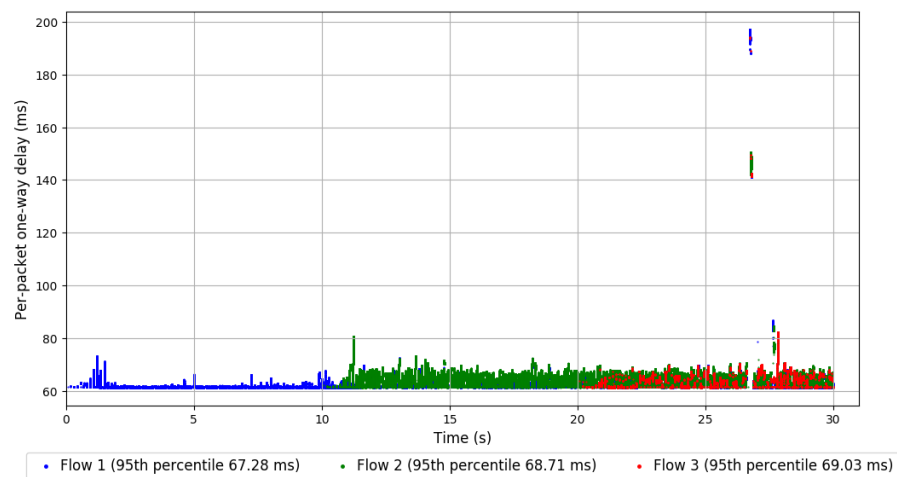
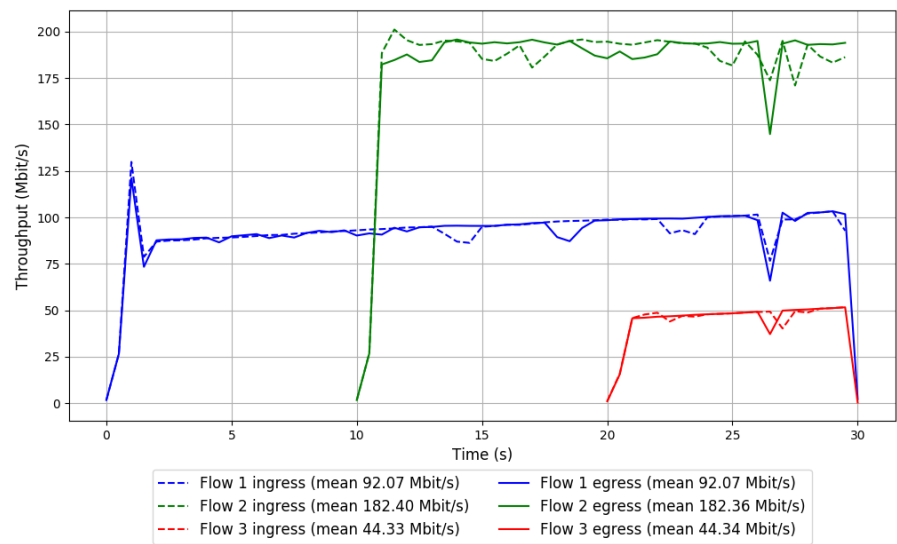
Average throughput: 44.34 Mbit/s

95th percentile per-packet one-way delay: 69.030 ms

Loss rate: 0.00%



Run 5: Report of TCP Vegas — Data Link



Run 6: Statistics of TCP Vegas

Start at: 2017-09-19 06:22:10

End at: 2017-09-19 06:22:40

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 113.35 Mbit/s

95th percentile per-packet one-way delay: 63.214 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 44.61 Mbit/s

95th percentile per-packet one-way delay: 62.871 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 54.42 Mbit/s

95th percentile per-packet one-way delay: 63.154 ms

Loss rate: 0.00%

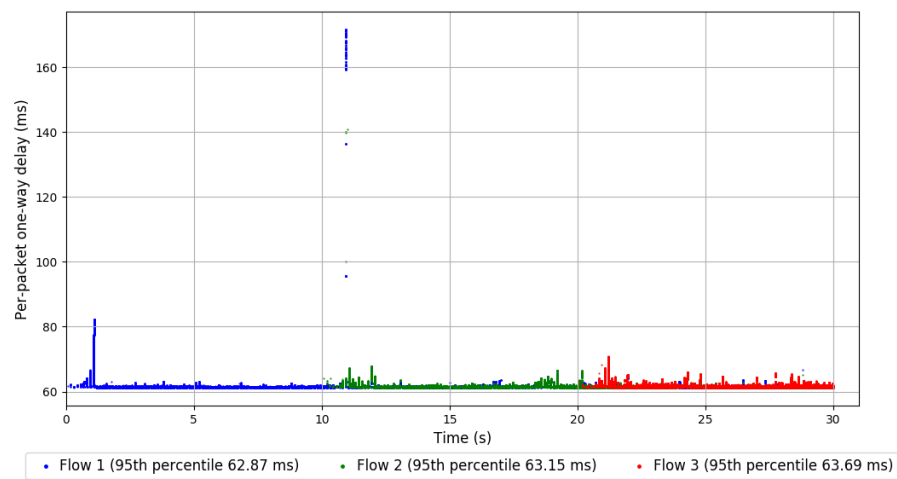
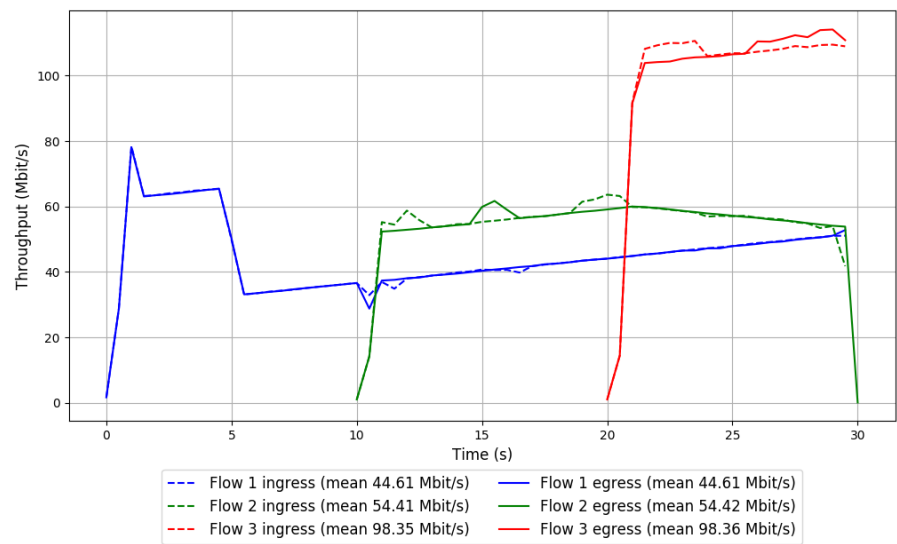
-- Flow 3:

Average throughput: 98.36 Mbit/s

95th percentile per-packet one-way delay: 63.688 ms

Loss rate: 0.00%

Run 6: Report of TCP Vegas — Data Link



Run 7: Statistics of TCP Vegas

Start at: 2017-09-19 06:31:15

End at: 2017-09-19 06:31:45

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 234.96 Mbit/s

95th percentile per-packet one-way delay: 65.831 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 93.02 Mbit/s

95th percentile per-packet one-way delay: 64.401 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 172.63 Mbit/s

95th percentile per-packet one-way delay: 64.625 ms

Loss rate: 0.00%

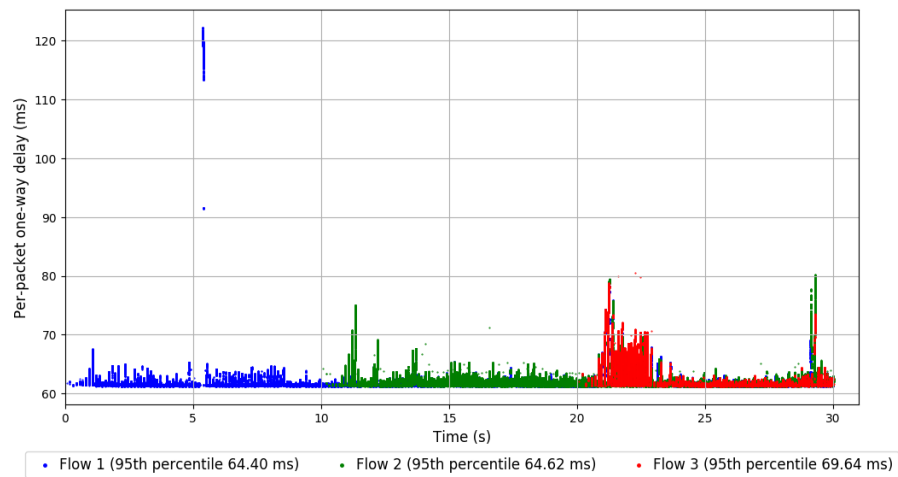
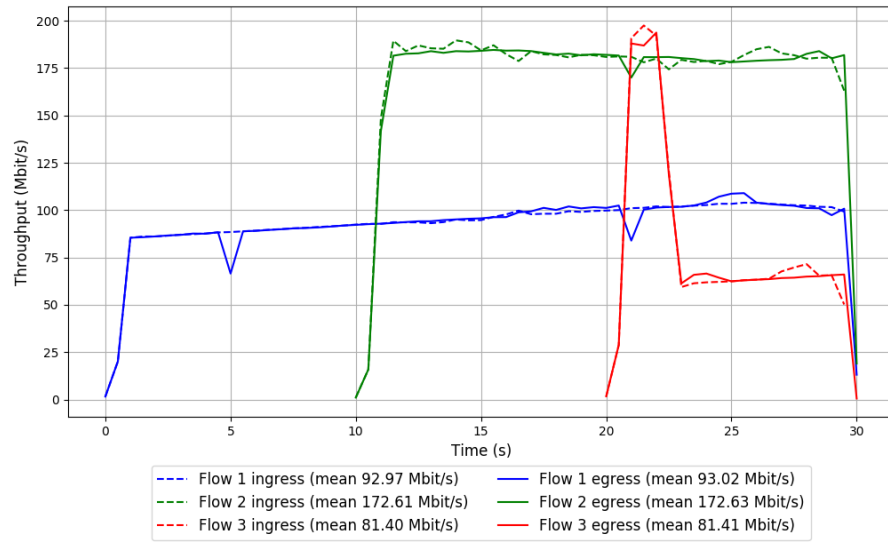
-- Flow 3:

Average throughput: 81.41 Mbit/s

95th percentile per-packet one-way delay: 69.642 ms

Loss rate: 0.00%

## Run 7: Report of TCP Vegas — Data Link



Run 8: Statistics of TCP Vegas

Start at: 2017-09-19 06:40:36

End at: 2017-09-19 06:41:06

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 270.18 Mbit/s

95th percentile per-packet one-way delay: 68.042 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 139.72 Mbit/s

95th percentile per-packet one-way delay: 67.424 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 138.74 Mbit/s

95th percentile per-packet one-way delay: 68.575 ms

Loss rate: 0.00%

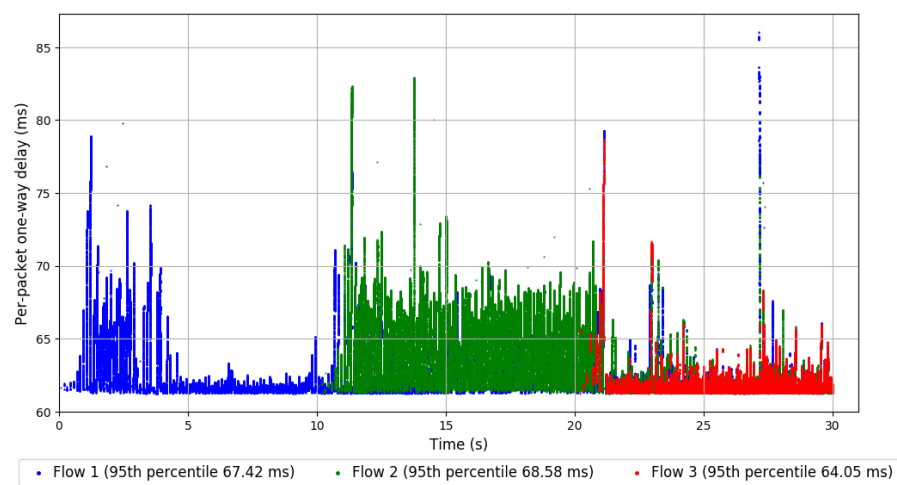
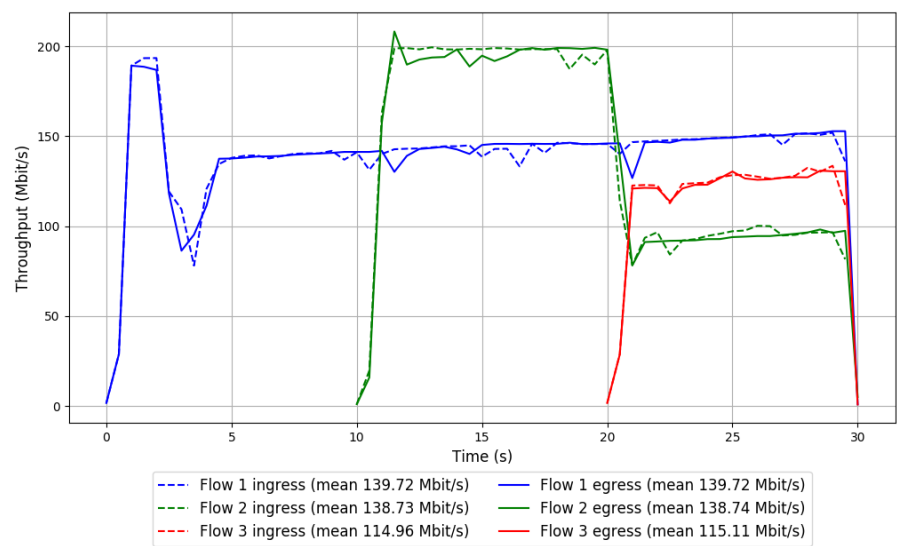
-- Flow 3:

Average throughput: 115.11 Mbit/s

95th percentile per-packet one-way delay: 64.047 ms

Loss rate: 0.00%

Run 8: Report of TCP Vegas — Data Link



Run 9: Statistics of TCP Vegas

Start at: 2017-09-19 06:50:12

End at: 2017-09-19 06:50:42

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 214.05 Mbit/s

95th percentile per-packet one-way delay: 68.901 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 110.43 Mbit/s

95th percentile per-packet one-way delay: 67.686 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 82.43 Mbit/s

95th percentile per-packet one-way delay: 69.668 ms

Loss rate: 0.00%

-- Flow 3:

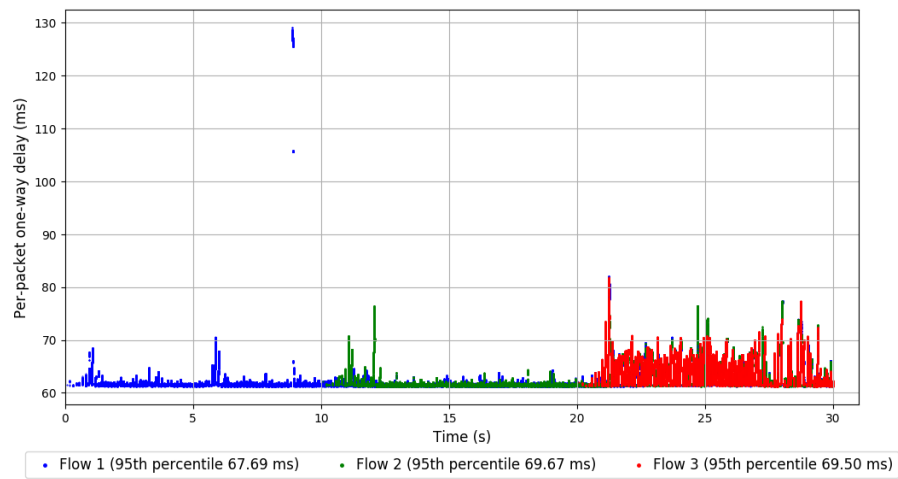
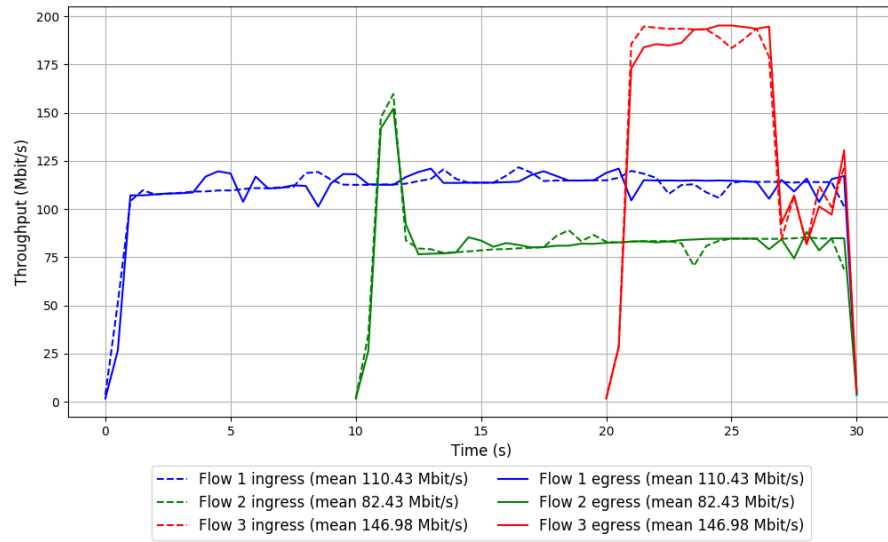
Average throughput: 146.98 Mbit/s

95th percentile per-packet one-way delay: 69.502 ms

Loss rate: 0.00%



### Run 9: Report of TCP Vegas — Data Link



Run 10: Statistics of TCP Vegas

Start at: 2017-09-19 06:59:26

End at: 2017-09-19 06:59:56

# Below is generated by plot.py at 2017-09-19 09:08:29

# Datalink statistics

-- Total of 3 flows:

Average throughput: 155.42 Mbit/s

95th percentile per-packet one-way delay: 63.779 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 56.12 Mbit/s

95th percentile per-packet one-way delay: 63.349 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 98.74 Mbit/s

95th percentile per-packet one-way delay: 63.364 ms

Loss rate: 0.00%

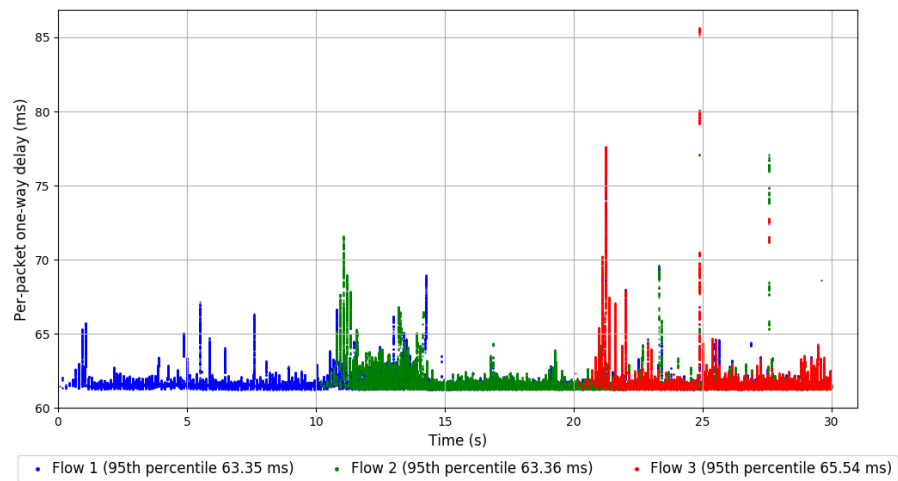
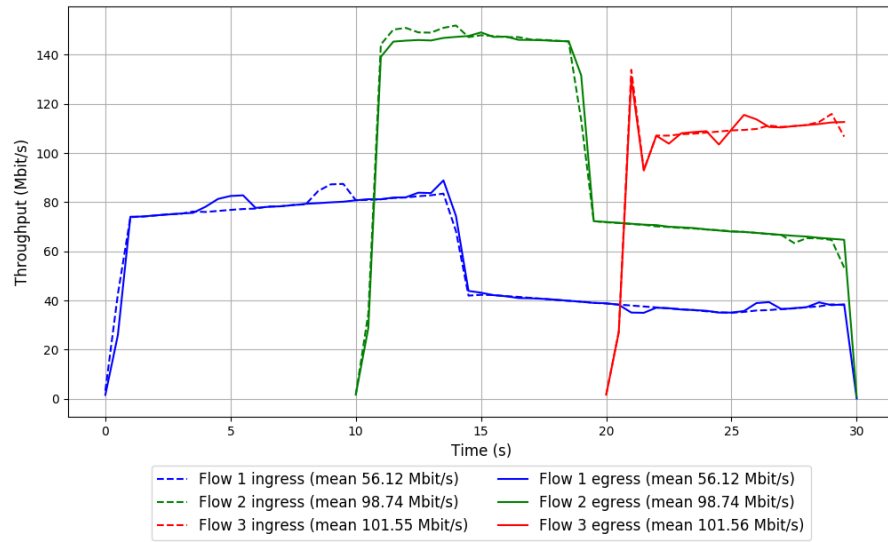
-- Flow 3:

Average throughput: 101.56 Mbit/s

95th percentile per-packet one-way delay: 65.536 ms

Loss rate: 0.00%

# Run 10: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2017-09-19 05:39:40

End at: 2017-09-19 05:40:10

# Below is generated by plot.py at 2017-09-19 09:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 403.74 Mbit/s

95th percentile per-packet one-way delay: 115.637 ms

Loss rate: 0.28%

-- Flow 1:

Average throughput: 238.92 Mbit/s

95th percentile per-packet one-way delay: 110.179 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 208.35 Mbit/s

95th percentile per-packet one-way delay: 120.865 ms

Loss rate: 0.00%

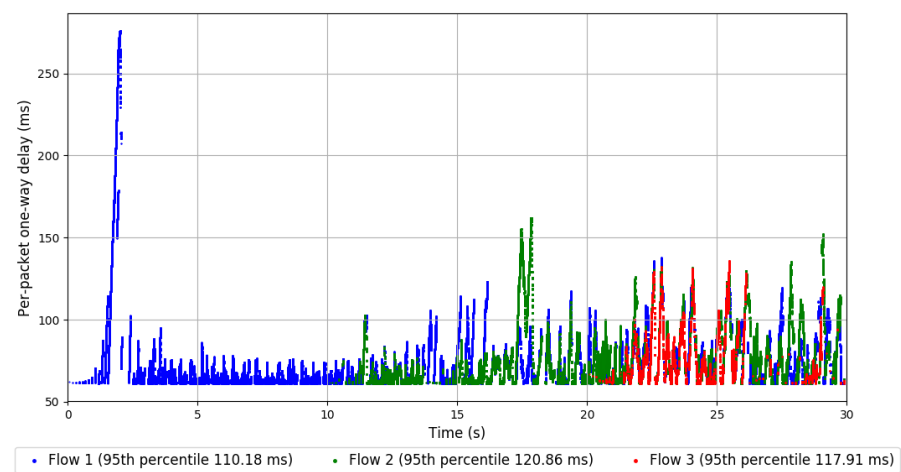
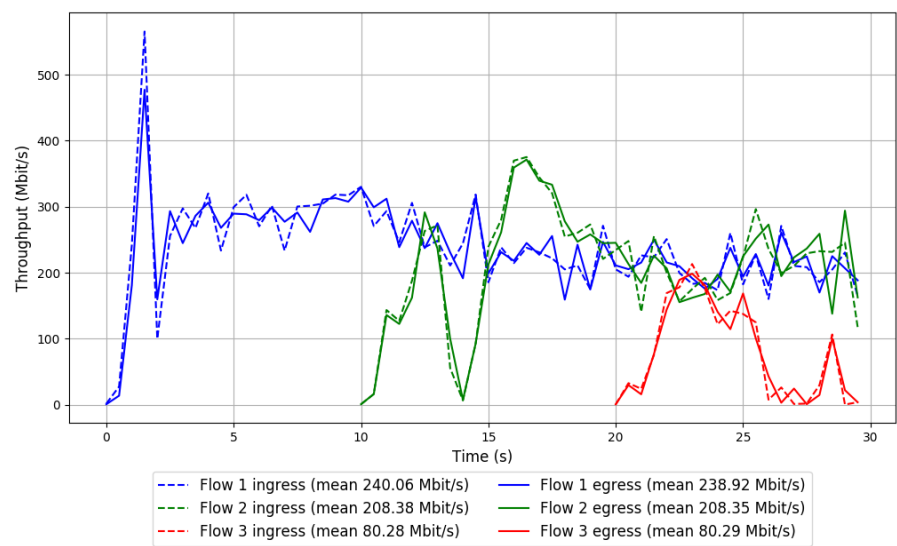
-- Flow 3:

Average throughput: 80.29 Mbit/s

95th percentile per-packet one-way delay: 117.914 ms

Loss rate: 0.02%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-09-19 05:48:49

End at: 2017-09-19 05:49:19

# Below is generated by plot.py at 2017-09-19 09:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 338.01 Mbit/s

95th percentile per-packet one-way delay: 145.259 ms

Loss rate: 1.68%

-- Flow 1:

Average throughput: 171.84 Mbit/s

95th percentile per-packet one-way delay: 157.943 ms

Loss rate: 3.19%

-- Flow 2:

Average throughput: 176.32 Mbit/s

95th percentile per-packet one-way delay: 137.646 ms

Loss rate: 0.08%

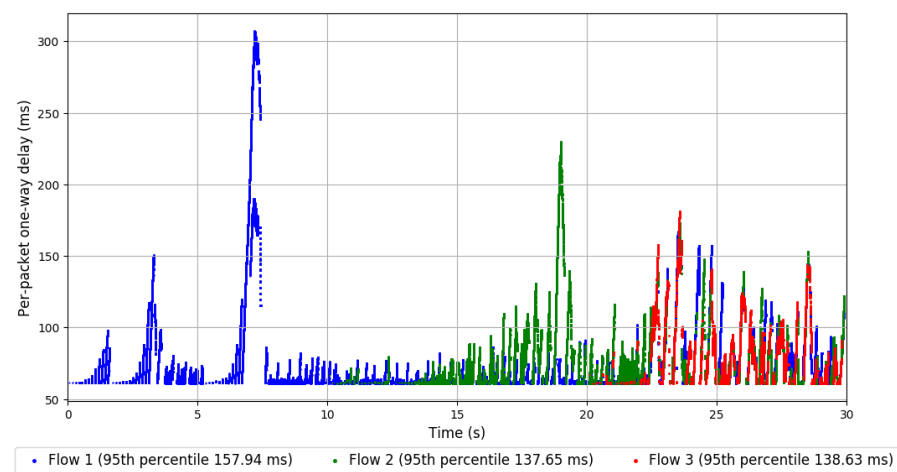
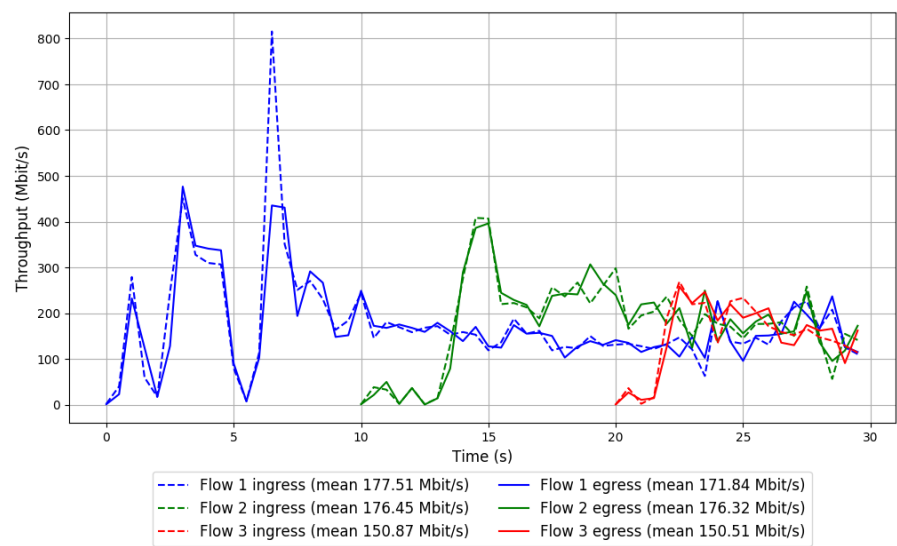
-- Flow 3:

Average throughput: 150.51 Mbit/s

95th percentile per-packet one-way delay: 138.634 ms

Loss rate: 0.03%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2017-09-19 05:58:03

End at: 2017-09-19 05:58:33

# Below is generated by plot.py at 2017-09-19 09:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 306.54 Mbit/s

95th percentile per-packet one-way delay: 135.870 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 164.94 Mbit/s

95th percentile per-packet one-way delay: 144.446 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 145.21 Mbit/s

95th percentile per-packet one-way delay: 113.944 ms

Loss rate: 0.10%

-- Flow 3:

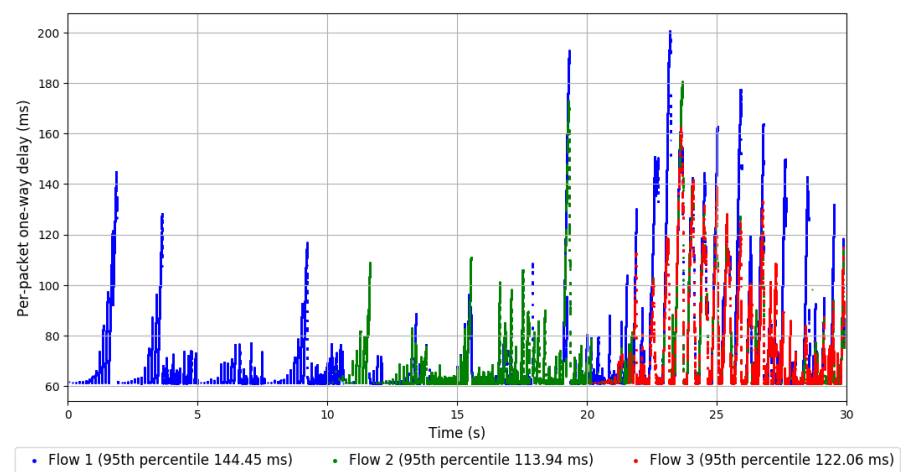
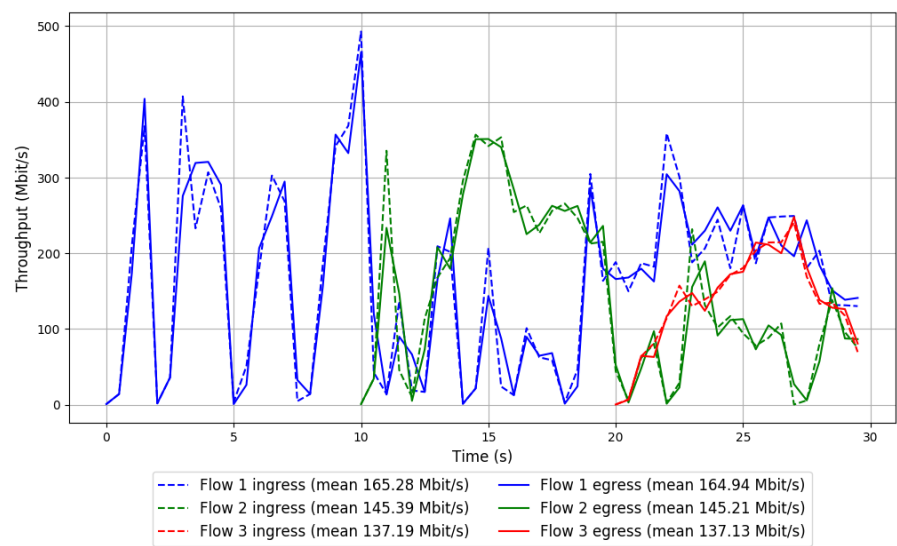
Average throughput: 137.13 Mbit/s

95th percentile per-packet one-way delay: 122.060 ms

Loss rate: 0.06%



Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2017-09-19 06:07:14

End at: 2017-09-19 06:07:44

# Below is generated by plot.py at 2017-09-19 09:11:56

# Datalink statistics

-- Total of 3 flows:

Average throughput: 341.48 Mbit/s

95th percentile per-packet one-way delay: 193.967 ms

Loss rate: 1.66%

-- Flow 1:

Average throughput: 230.65 Mbit/s

95th percentile per-packet one-way delay: 168.499 ms

Loss rate: 0.84%

-- Flow 2:

Average throughput: 149.11 Mbit/s

95th percentile per-packet one-way delay: 279.536 ms

Loss rate: 3.87%

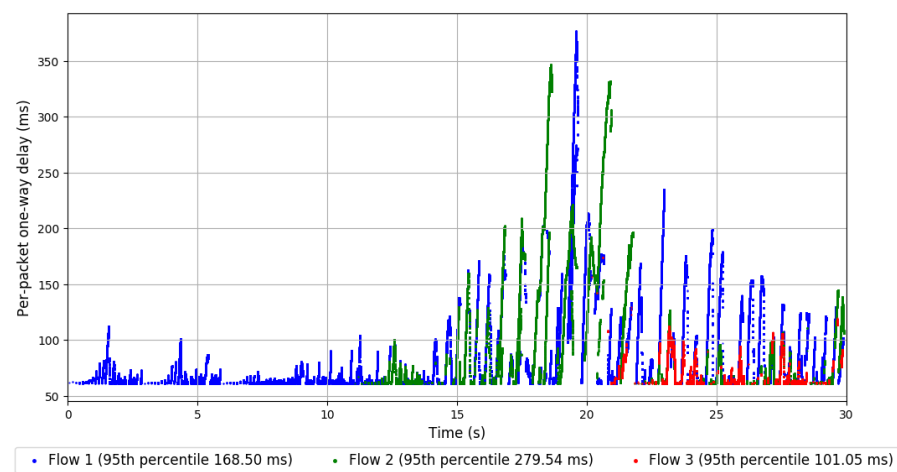
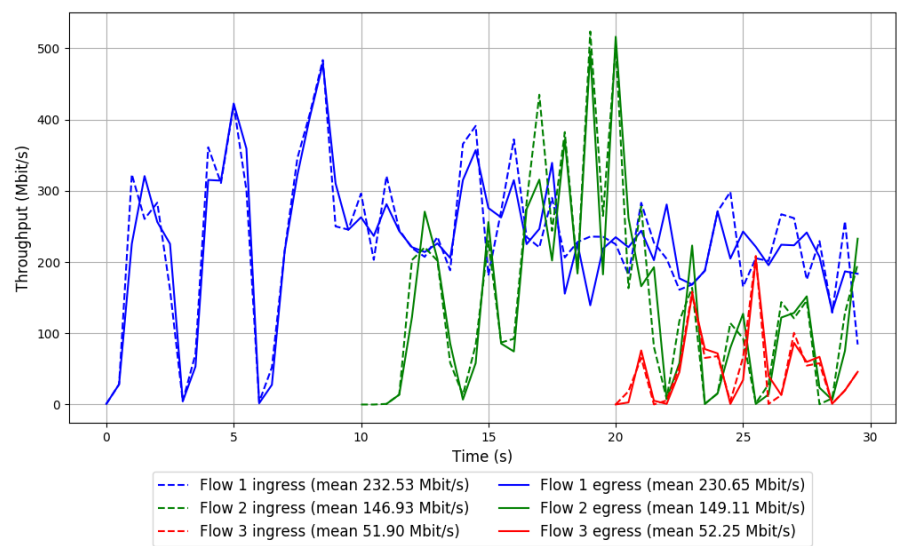
-- Flow 3:

Average throughput: 52.25 Mbit/s

95th percentile per-packet one-way delay: 101.048 ms

Loss rate: 0.00%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2017-09-19 06:16:32

End at: 2017-09-19 06:17:02

# Below is generated by plot.py at 2017-09-19 09:11:59

# Datalink statistics

-- Total of 3 flows:

Average throughput: 340.33 Mbit/s

95th percentile per-packet one-way delay: 138.020 ms

Loss rate: 3.64%

-- Flow 1:

Average throughput: 204.89 Mbit/s

95th percentile per-packet one-way delay: 103.078 ms

Loss rate: 0.31%

-- Flow 2:

Average throughput: 160.87 Mbit/s

95th percentile per-packet one-way delay: 150.888 ms

Loss rate: 0.55%

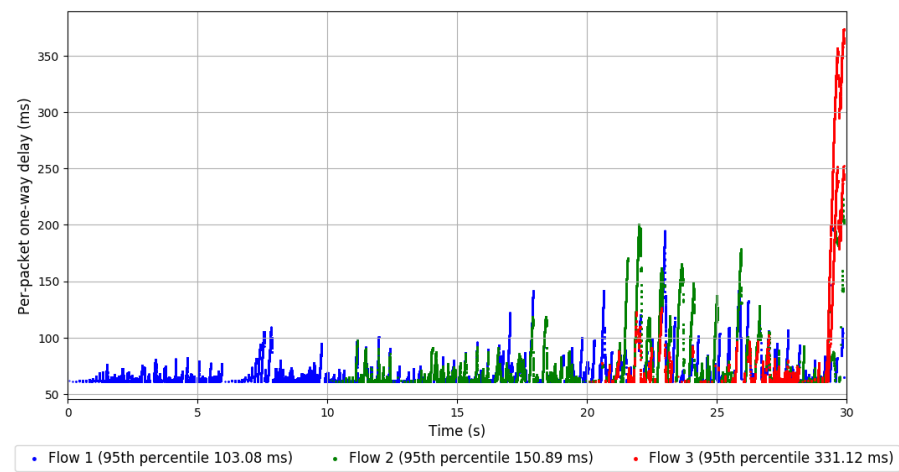
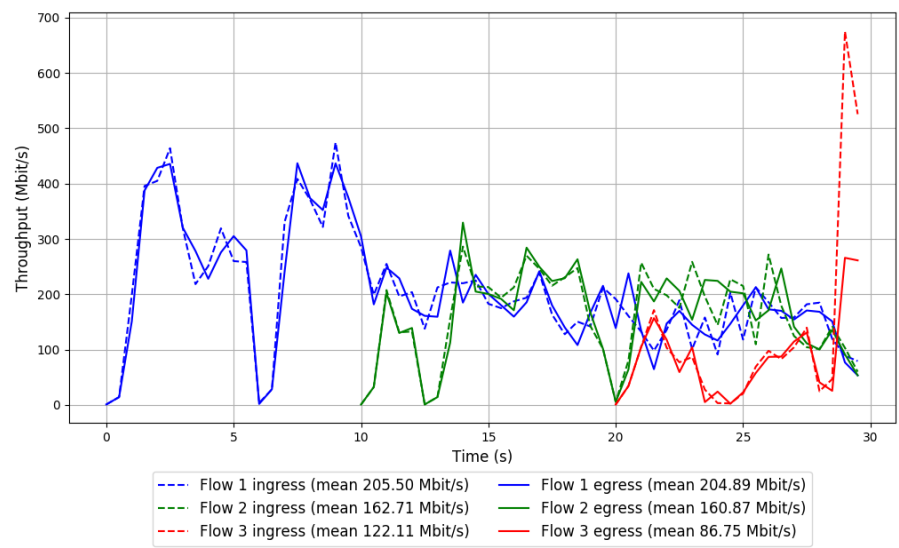
-- Flow 3:

Average throughput: 86.75 Mbit/s

95th percentile per-packet one-way delay: 331.115 ms

Loss rate: 28.97%

Run 5: Report of Verus — Data Link



Run 6: Statistics of Verus

Start at: 2017-09-19 06:25:42

End at: 2017-09-19 06:26:12

# Below is generated by plot.py at 2017-09-19 09:12:41

# Datalink statistics

-- Total of 3 flows:

Average throughput: 351.05 Mbit/s

95th percentile per-packet one-way delay: 138.638 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 216.83 Mbit/s

95th percentile per-packet one-way delay: 134.124 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 169.08 Mbit/s

95th percentile per-packet one-way delay: 153.084 ms

Loss rate: 0.02%

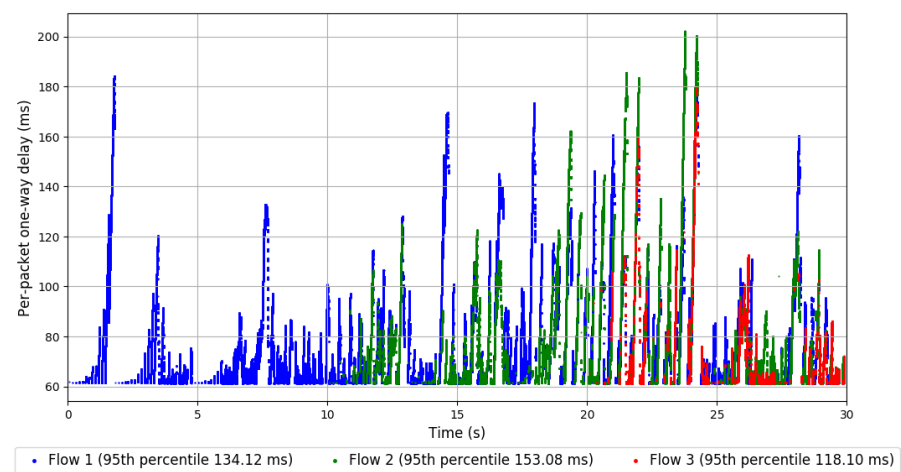
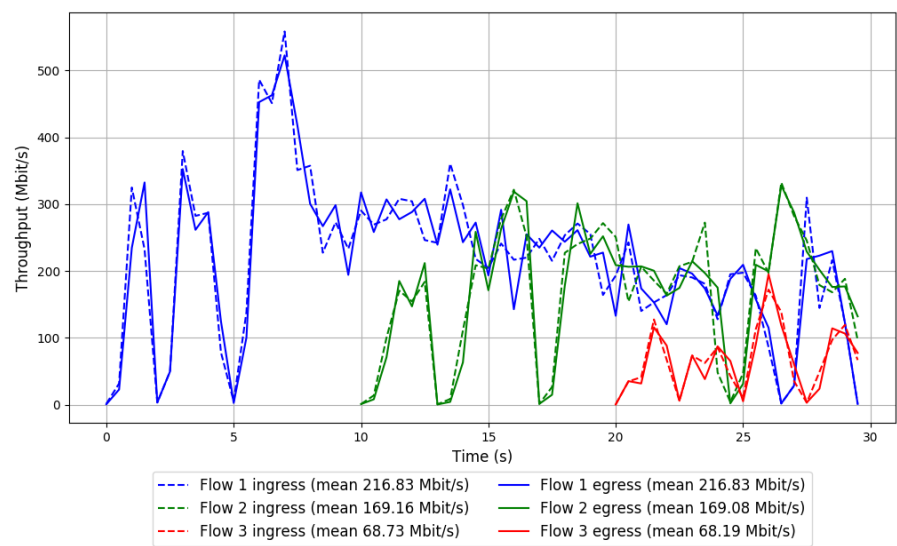
-- Flow 3:

Average throughput: 68.19 Mbit/s

95th percentile per-packet one-way delay: 118.100 ms

Loss rate: 0.77%

Run 6: Report of Verus — Data Link



Run 7: Statistics of Verus

Start at: 2017-09-19 06:34:54

End at: 2017-09-19 06:35:24

# Below is generated by plot.py at 2017-09-19 09:13:13

# Datalink statistics

-- Total of 3 flows:

Average throughput: 348.60 Mbit/s

95th percentile per-packet one-way delay: 125.030 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 219.94 Mbit/s

95th percentile per-packet one-way delay: 122.085 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 151.44 Mbit/s

95th percentile per-packet one-way delay: 138.288 ms

Loss rate: 0.25%

-- Flow 3:

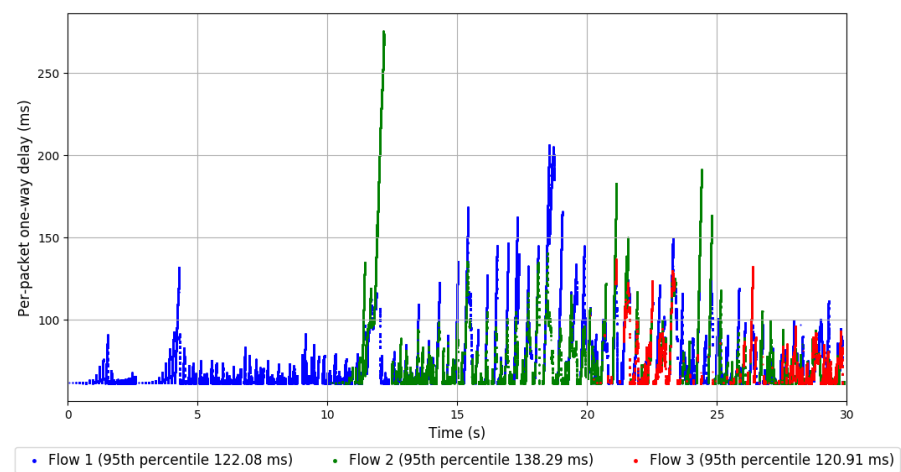
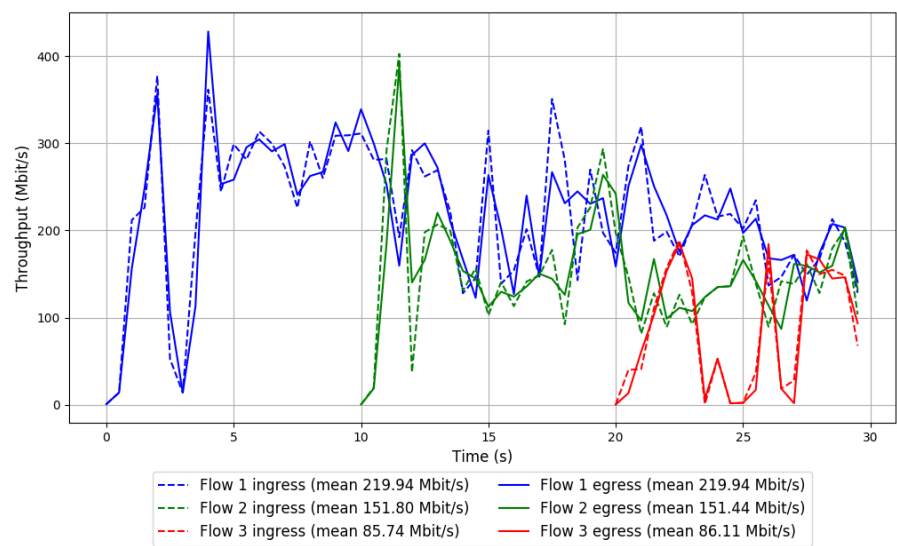
Average throughput: 86.11 Mbit/s

95th percentile per-packet one-way delay: 120.905 ms

Loss rate: 0.00%



Run 7: Report of Verus — Data Link



Run 8: Statistics of Verus

Start at: 2017-09-19 06:44:19

End at: 2017-09-19 06:44:49

# Below is generated by plot.py at 2017-09-19 09:13:34

# Datalink statistics

-- Total of 3 flows:

Average throughput: 381.64 Mbit/s

95th percentile per-packet one-way delay: 129.077 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 270.29 Mbit/s

95th percentile per-packet one-way delay: 136.120 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 144.93 Mbit/s

95th percentile per-packet one-way delay: 109.086 ms

Loss rate: 0.00%

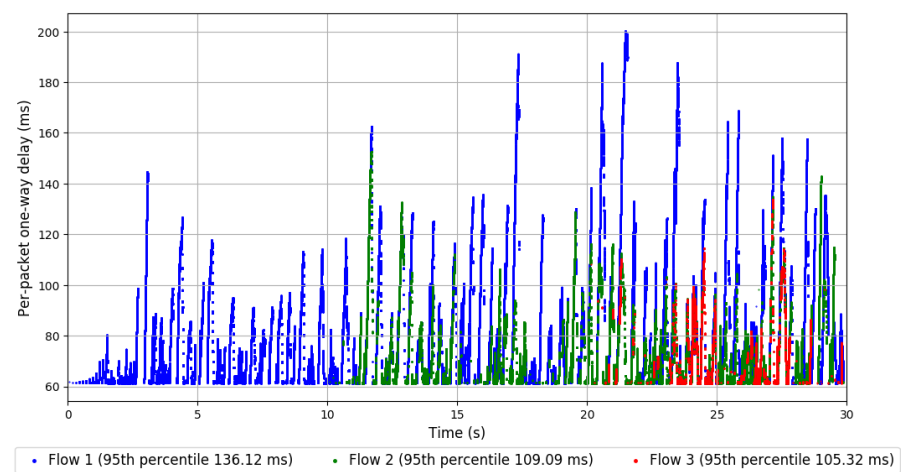
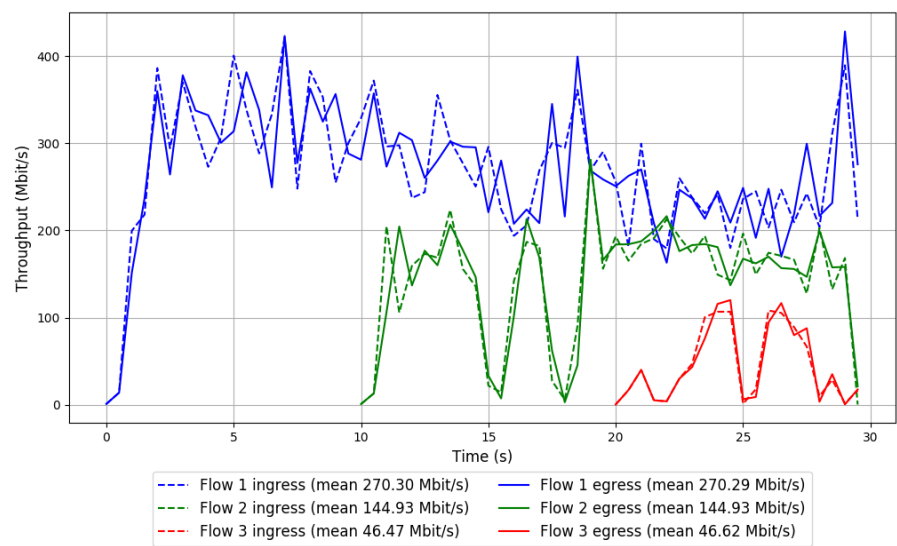
-- Flow 3:

Average throughput: 46.62 Mbit/s

95th percentile per-packet one-way delay: 105.317 ms

Loss rate: 0.00%

Run 8: Report of Verus — Data Link



Run 9: Statistics of Verus

Start at: 2017-09-19 06:53:50

End at: 2017-09-19 06:54:20

# Below is generated by plot.py at 2017-09-19 09:13:40

# Datalink statistics

-- Total of 3 flows:

Average throughput: 321.94 Mbit/s

95th percentile per-packet one-way delay: 113.454 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 194.60 Mbit/s

95th percentile per-packet one-way delay: 109.753 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 145.41 Mbit/s

95th percentile per-packet one-way delay: 118.873 ms

Loss rate: 0.00%

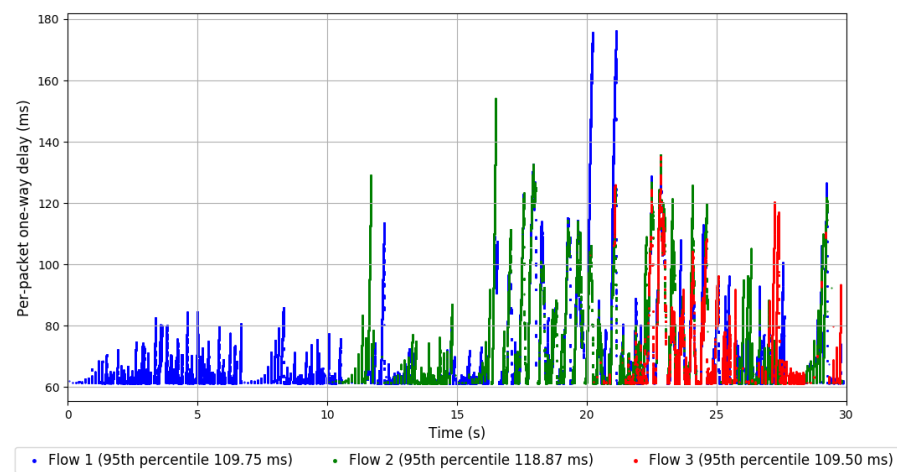
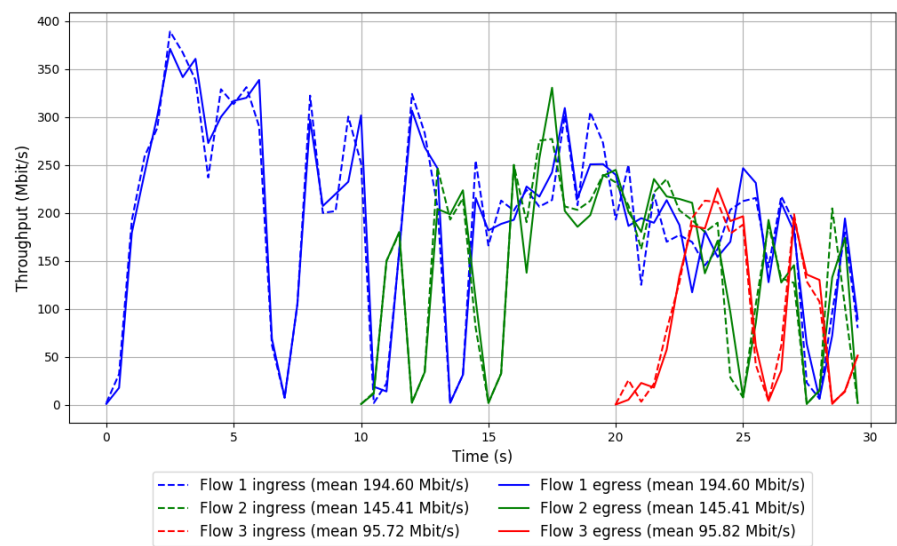
-- Flow 3:

Average throughput: 95.82 Mbit/s

95th percentile per-packet one-way delay: 109.503 ms

Loss rate: 0.00%

Run 9: Report of Verus — Data Link



Run 10: Statistics of Verus

Start at: 2017-09-19 07:03:00

End at: 2017-09-19 07:03:30

# Below is generated by plot.py at 2017-09-19 09:13:42

# Datalink statistics

-- Total of 3 flows:

Average throughput: 307.10 Mbit/s

95th percentile per-packet one-way delay: 111.242 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 193.33 Mbit/s

95th percentile per-packet one-way delay: 119.382 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 132.47 Mbit/s

95th percentile per-packet one-way delay: 91.247 ms

Loss rate: 0.61%

-- Flow 3:

Average throughput: 88.89 Mbit/s

95th percentile per-packet one-way delay: 100.286 ms

Loss rate: 0.00%

Run 10: Report of Verus — Data Link

